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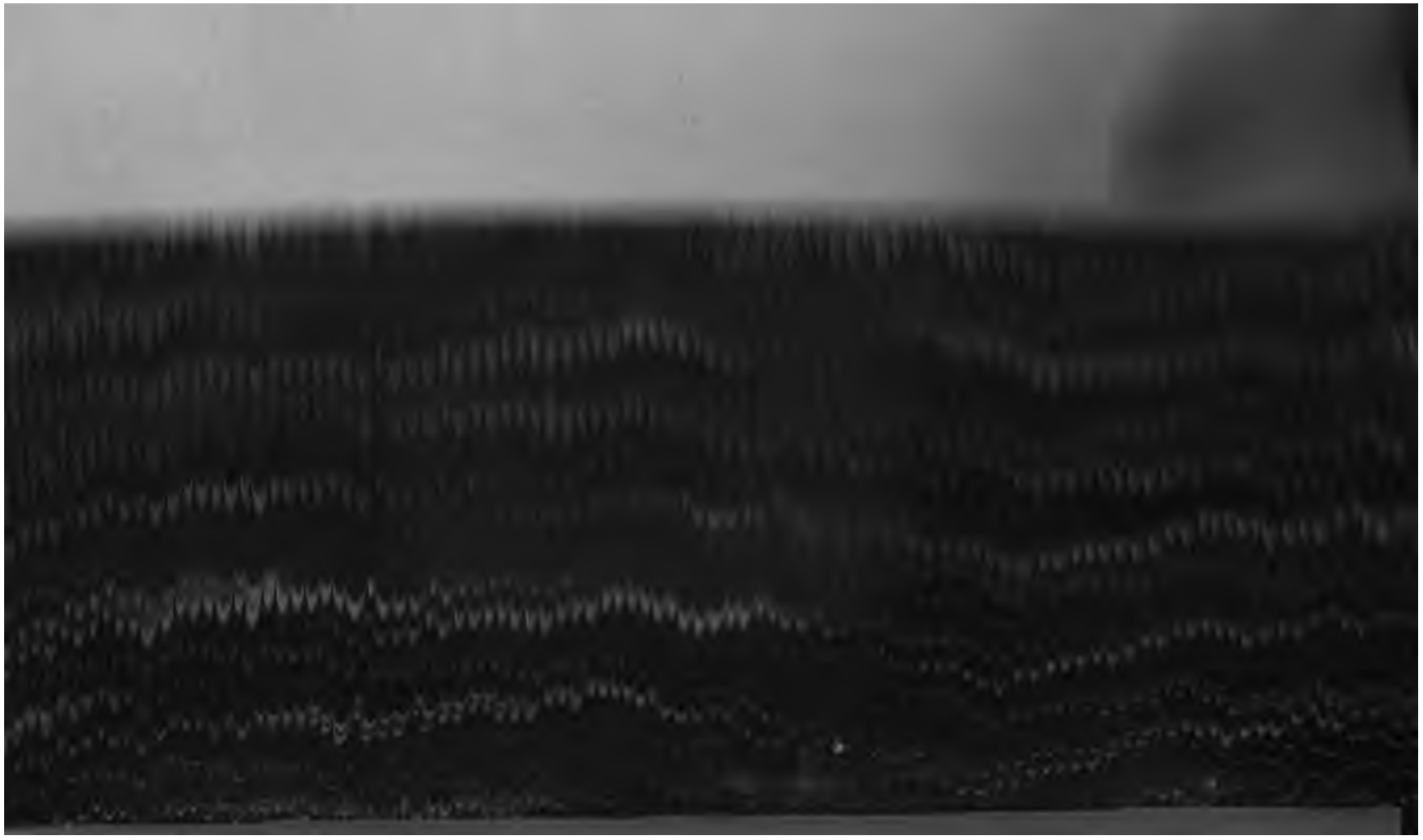

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TRANSACTIONS

OF THE

AMERICAN ENTOMOLOGICAL SOCIETY.

VOLUME VII.

Notes on some species of HISTER.

BY GEORGE H. HORN, M. D.

In the synopsis of the species of Hister of our fauna published by me (Proc. Am. Philos. Soc. 1873, p. 280), the arrangement is very nearly that adopted by Marseul, except that the truncation of the mesosternum enters as an important factor. There was observed at the time (p. 292), a tendency in several species in which the mesosternum was emarginate to have the emargination become so feeble as to cause the character to lose a portion of its value. In a review of the species made while comparing some unnamed specimens it seemed that sufficient importance had not been given to the striation of the prosternum, a character casually mentioned by Marseul but not otherwise made use of.

A modification of the table (synopsis p. 280), introducing this character seems to give a much better arrangement of the species, at the same time rendering the transition between the normal Histers and Phelister less abrupt. In the latter group all the species have a striate prosternum. The following is in short the change proposed:

Prosternum convex, without striæ.
  Mesosternum emarginate.....Groups 1—7.
  Mesosternum truncate.....Groups 8—9.
Prosternum more or less flattened, bistriate.
  Mesosternum very feebly emarginate.....Group *servus*.

Group—*servus*.

Prosternum more or less flattened and bistriate, anterior tibiæ tridentate, the apical tooth bifid. (Elytra with four entire striæ and no subhumeral). The species are as follows:

Outer thoracic stria entire.
  Pygidium coarsely and densely punctured.....**servus.**
  Pygidium finely and sparsely punctured.....**indistinctus.**
Outer thoracic stria very short.....**defectus.**

The striæ which are characteristic of this group extend from the tip of the prosternum to the beginning of the lobe, and are divergent at each end, more so posteriorly. In the first two species the striæ are hooked at the anterior end and their tips thus approach, in *defectus* they are divergent and not hooked.

H. servus, Er.—West Indies, Maryland, Arizona.
H. indistinctus, Say,—N. C., Ga., N. M.
H. defectus, Lec.—Mass., S. C., Ga.

I have in my cabinet a specimen with the last two dorsal segments coarsely and densely punctured as in *servus* but with the outer thoracic stria short as in *defectus*. I do not care to give this a name until other specimens appear when it may possibly be necessary to unite those already named instead of describing new species.

Revision of the species of ACMÆODERA of the United States.

BY GEORGE H. HORN, M. D.

The number of new species which have accumulated in our collections since the latest synopsis (Leconte, Trans. Am. Philos. Soc. 1859), has nearly equalled the number then known and of these fourteen have remained to the present time unnamed. While feeling the necessity of having these described I have until now been deterred from attempting any arrangement of our entire series by the remarks of Mr. Crotch (Proc. Acad. 1873, p. 89), as follows: "but I am entirely unable to discover any characters except the variable ones of color, sculpture and form; so that the limits of species appear to be merely opinionative." Possibly the following pages may show quite to the contrary.

As there is considerable structural variation the different members of the body will be reviewed.

The head is always punctured, the front either impressed or convex and the vertex usually finely carinate, either deeply inserted with the eyes partly concealed by the angles of the thorax, or with the eyes free.

The thorax is very variable. When viewed from above the apex may be emarginate as in the *sinuatæ* and *emarginatæ* or truncate as in the *truncatæ*; sometimes the middle of the anterior margin is slightly prolonged. The sides vary in form from strongly arcuate to nearly straight, and the margin may be broad and distinctly reflexed or very narrow, often entirely invisible from above or even nearly

entirely obliterated (*gemina*). The upper side has, in a general way a similarity of sculpture. There is a broad triangular impression at middle and an oblique impression on each side terminating in a fovea at base, in all those species with a depressed thorax. In the convex species these impressions are reduced so that there are merely three basal foveæ. In width there is also considerable diversity, a moderate number have the thorax wider than the elytra, in others the sides are regularly and gradually arcuate from tip to base.

The prosternum exhibits remarkable differences. The simplest form is that in which the apex of thorax is almost squarely truncate so that the margin above and beneath is continuous, the angles of the prosternum being prolonged so as to touch the angles of the thorax. The next form is that in which the angles of the thorax are produced partly concealing the eyes, the thorax above emarginate and the alæ or angles of prosternum not attaining the angles. The form naturally following this has a similar form but the edge of the prosternum is trisinuate, the middle portion, immediately behind the head broadly emarginate and limited on each side by a tooth of variable prominence. Another modification results from the presence of a lobe at the middle of the prosternum of moderate extent, emarginate and angulate, external to which the prosternum is slightly notched the alæ however attaining the angles of the thorax.

The elytra are variable in form to a moderate degree and may be depressed or not, the surface is marked with striæ of punctures also variable, the intervals in several species subcostiform. The base is truncate, except in *gibbula* in which the middle is slightly arcuate forward and the humeral angles prolonged, slightly clasping the base of the thorax.

The abdomen varies in punctuation, usually the punctures are sparsely placed, equally over the entire surface. In *pubiventris* and *comata* however the sides are more densely punctured and the pubescence also denser and longer. In *guttifera* the last three segments are very densely and finely punctured and in *versuta* the last two but not as densely or finely as *guttifera*.

The last ventral segment has, in many species, close to the apical margin and parallel with it an elevated plate of varying extent, sometimes reduced to a mere subapical ridge. In a number of species however it is entirely absent. When fully developed this plate causes the apical margin to appear double and the term is so used in the following pages.

The tarsi in the vast majority of species are short, usually not longer than one-third the tibiæ and moderately dilated. In two species however they are long and slender, equalling at least the half of the tibiæ and not dilated. The claws exhibit feeble variations, not of sufficient moment however to mention.

The antennæ show a modification in but one species. The normal form is that in which the fifth joint is suddenly broader than the fourth and the following joints similar to it. In *gemina* however the fourth joint is a little wider than the third and the fifth a little wider than the fourth so that the abrupt dilatation of the fifth joint entirely disappears.

The surface of the body has usually a more or less distinct tinge of bronze and from the minute punctures of the intervals arise usually brownish hairs. Four species, *subbalteata*, *culta*, *quadrivittata* and *gemina*, have short erect setæ.

Regarding the ornamentation nothing can be said in general. The accompanying plate will show the styles. There is but one color character of value, the presence of the yellow side spot on the thorax, it is either constantly present in a given species or as persistently absent.

Based on the characters above mentioned it is proposed to divide the genus into several groups in the following manner:

Tarsi short, moderately dilated.....1.

Tarsi long, equalling more than half the length of the tibiæ.....2.

1.—Prosternum with the anterior margin trisinuate, (Pl. I, A).
Acmæoderæ sinuatæ.

Prosternum simply shorter than the anterior angles, (Pl. I, B).
Acmæoderæ emarginatæ.

Prosternum truncate, as long as the anterior angles, (Pl. I, C).
Acmæoderæ truncatæ.

Prosternum lobed at middle, alæ attaining the angles, (Pl. I, D).
Acmæoderæ lobatæ.

2.—Form slender, prosternum lobed or truncate.....**Acmæoderæ graciliformes.**

ACMÆODERÆ SINUATÆ.

This group is composed entirely of species of at least moderate size and those also in which the thorax attains its greatest width and depression and the most distinctly reflexed margin. Doubtless very many Mexican species go here. In our fauna it is at present the largest group the species being thirteen in number and arrange themselves naturally in the following manner:

Thorax wider than the base of the elytra, margin usually well defined, lateral and visible in its entire extent from above.....1.
Thorax not wider than the elytra, margin extremely narrow, becoming inferior at least posteriorly or often nearly obliterated behind.....8.

1.—Sculpture above very coarse, punctures large and deep obliterating the intervals (excepting the third which is subcostiform). Body above greenish bronze without ornamentation. Thorax without marginal spot.....**cuprina.**
Sculpture above finer, punctures small, intervals distinct. Body above ornate. Thorax margined with yellow.....2.

2.—Thoracic margin rather wide distinctly reflexed.....3.
Thoracic margin very narrow not reflexed.....7.

3.—Last ventral segment with well defined double margin.....4.
Last ventral with scarcely a trace of subapical carina.....6.

4.—Thorax rather suddenly wider at base than the elytra, sides feebly arcuate or nearly straight, rapidly converging to apex.....**amplicollis.**
Thorax but little wider at base than elytra, sides arcuately and gradually narrowing to apex.....5.

5.—Prosternum coarsely and rather densely punctured.....**opacula.**
Prosternum very finely and sparsely punctured.....**amabilis.**

6.—Elytral ornamentation consisting of a marginal band extending to middle and broader behind, and a broad transverse band near the tip enclosing three spots.....**flavomarginata.**
Elytral ornamentation of four narrow transverse bands very irregular and much interrupted.....**macra.**

7.—Body above black, thorax yellow at the sides; elytra with four transverse bands interrupted at suture, the anterior arcuate to the front...**robusta.**

8.—Thorax margined with yellow.....11.
Thorax unicolored.....9.

9.—Abdomen at sides more densely and finely punctured than at middle and clothed with long white hair.....**pubiventris.**
Abdomen equally and sparsely punctured and with very little pubescence.....10.

10.—Thorax rather densely punctured; elytra coppery bronze with large irregular reddish spots arranged as four transverse interrupted bands; punctures near the tip rather fine, intervals very little more convex at tip than on the disc.....**plagiaticauda.**
Thorax densely punctured; elytra blackish and with numerous very small spots scattered over the surface. Striæ at tip coarsely and deeply punctured, intervals very convex.....**miliaris.**
Thorax very sparsely punctured; elytra black shining and with a few small spots irregularly scattered. Intervals at tip feebly convex, the striæ moderately punctured.....**sparsa.**

11.—Thorax very sparsely punctured in the median depression, elytra with three bands interrupted at middle and an apical spot.....**tnta.**
Thorax as densely punctured in the impression as in front, elytra ornamented as in *amplicollis* or *connexa*.....**Hepburnii.**

A. cuprina, Spin.—Form elongate triangular, depressed, broadly obtuse in front, color dark greenish bronze moderately shining, sparsely clothed with erect black hair. Head densely punctured, vertex longitudinally impressed and with a feeble carina posteriorly. Thorax more than twice as wide as long,

emarginate at apex, base truncate, sides feebly arcuate but rapidly divergent posteriorly, near the base suddenly arcuately narrowed, margin acute, visible in its entire extent from above, not reflexed, surface densely and coarsely punctured, with a broad triangular median and on each side an oblique impression. Elytra twice as long as wide at base and with rows of cribrate punctures obliterating the intervals excepting the fourth and sixth, the former sub-costiform and extending three-fourths to apex, the latter less elevated extending to middle; sides of elytra from apical third to tip rather coarsely serrate, humeral umbone moderately prominent. Body beneath colored as above but more shining. Thorax coarsely not densely punctured, sternum in front strongly trisinuate. Metasternal side pieces and coxal plate coarsely and densely punctured. Abdomen sparsely punctate, intervals smooth. Last ventral with very feeble submarginal line at tip. Surface beneath and legs sparsely clothed with moderately long whitish hairs. Length .46 inch; 11.5 mm.

This species is readily known by its uniform color and depressed form. It is doubtful as a member of our fauna and is introduced on the authority of the collection of Count Mnizech of Paris from whom Dr. Leconte obtained a specimen said to have been collected in our territory.

A. amplicollis, Lec.—(Pl. I, fig. 1.) Form elongate triangular, very obtuse in front, thorax greenish, shining, sides broadly yellow, elytra slightly bluish ornamented with yellow longitudinal bands and irregular transverse fasciæ; surface sparsely clothed with short pale brown hair on the thorax, black on the elytra. Head coarsely and moderately densely punctured, front slightly concave, vertex with feeble carina. Thorax more than twice as wide as long, apex emarginate base truncate, sides very feebly arcuate, rapidly diverging posteriorly; hind angles rounded, wider than the elytra, lateral margin moderately broad, visible in its entire extent from above and distinctly reflexed; disc with broad median triangular impression and on each side near the base a moderately impressed fovea, surface coarsely but not densely punctate, color greenish, shining, sides rather broadly yellow, the latter color not reaching the anterior angles. Elytra twice as long as wide, gradually narrowing at basal three-fifths then rapidly narrowing to apex, sides near tip moderately strongly serrate; surface convex, disc slightly flattened, and with rows of large punctures deeply impressed, intervals distinct and with a single series of finer punctures, except behind the humeral umbone where the punctures of the striæ are large and confluent; umbone moderately prominent; color very dark blue ornamented with yellow forming at apical three-fifths a marginal plaga broader posteriorly and also a subsutural narrower stripe uniting with the former posteriorly, apical two-fifths with two narrow transverse bands interrupted at the suture. Prosternum trisinuate in front, sparsely punctured, sides of prothorax more coarsely but not densely punctured. Abdomen beneath moderately coarsely but not densely punctured. Color beneath dark metallic green, sparsely clothed with whitish hairs. Last ventral segment with distinct double margin at tip. Length .38—.44 inch; 9.5—11 mm.

This species occurs in Arizona and may be known especially by its broad thorax and the style of the elytral marking which has no parallel in this portion of the group.

A. opacula, Lec.—(Pl. I, fig. 2.) Form moderately elongate, sub-depressed, gradually narrower from base of thorax to tip of elytra, color nearly black, moderately shining, thorax margined with yellow, elytra with a marginal and discal row of yellow spots, and two bands at apical fourth slightly red, surface sparsely clothed with erect black hair. Head coarsely and moderately densely punctured, front scarcely impressed vertex distinctly carinate. Thorax twice as wide as long, apex emarginate, base truncate, sides feebly arcuate rapidly wider posteriorly, hind angles rounded, margin moderately wide, visible in its entire extent from above and distinctly reflexed; disc with broad, shallow, median triangular impression and a fovea on each side near the base, surface sparsely punctured at middle, more densely and coarsely at the sides. Elytra narrower at base than the thorax, gradually narrowing from base to apex, sides near the tip moderately serrate, umbone rather small, feebly prominent; disc slightly flattened and with rows of moderate punctures becoming much coarser and deeper toward the sides and tip, intervals distinct and with a single series of distant punctures; color black with feeble tinge of bronze and ornamented with yellow in the following manner: a sub-humeral marginal spot, a larger marginal spot at middle, four or five small discal spots in a row and two narrow bands near the apex, slightly reddish, interrupted at middle. Body beneath dark greenish bronze, shining, sparsely clothed with whitish hair. Prosternum trisinuate in front, moderately densely punctured, sides of thorax beneath coarsely punctured. Abdomen sparsely punctured at middle, more densely and coarsely at the sides. Last ventral with distinct double margin at tip. Length .42 inch; 10.5 mm.

The trivial name seems rather inapplicable as it is about as shining as any of the species without decided metallic surface.

Several specimens are before me, the type from El Paso, others from Arizona.

A. amabilis, n. sp.—(Pl. I, fig. 3.) Form moderately elongate, gradually narrower from base of elytra to tip, color piceous distinctly bronzed, shining, thorax margined with yellow at the sides, elytra with undulated marginal band, small discal spot, and two subapical bands yellow, surface sparsely clothed with erect brown hair. Front coarsely but not densely punctured, feebly impressed, vertical carina obsolete. Thorax more than twice as wide as long, emarginate at apex, truncate at base, sides moderately arcuate and gradually broader to base, margin visible from above, moderately broad and distinctly reflexed; disc with median triangular impression and a fovea on each side near the base; surface rather coarsely but not densely punctured at middle, more densely at the sides which are rather broadly margined with yellow. Elytra narrower at base than the thorax, umbone feeble, sides gradually arcuately narrowed to base, disc slightly depressed and with rows of punctures fine near the suture, coarser at the sides and apex, intervals with a single row of fine punctures, margin near apex moderately serrate; color piceous distinctly bronzed and ornamented with yellow as follows: a marginal band extending to middle gradually broader posteriorly, the inner edge undulating, a small discal spot at basal third, a small marginal spot behind the band, two transverse bands at apical fourth interrupted at suture, the posterior band red. Body beneath colored as above. Prosternum trisinuate in front, sparsely punctured, side pieces more coarsely punctured. Abdomen sparsely punctured at middle more

coarsely and densely at sides. Last ventral with distinct double apical margin. Length .40 inch; 10 mm.

I have seen two specimens from Arizona, one given me by Mr. C. V. Riley, the other in the cabinet of Mr. Ulke.

The elytral markings of this species belong to the same type as that of the next species.

A. flavomarginata, Gray.—(Pl. I, fig. 4.) Form moderately elongate, gradually narrowed from base of elytra to tip, moderately convex, color piceous shining, without metallic lustre above, elytra with lateral space and a transverse band at apical third reddish yellow. Head coarsely punctured, front slightly impressed and with coarser punctures forming strigæ, vertex distinctly carinate. Thorax rather more than twice as wide as long, wider at base than the elytra, apex emarginate and with a distinct post-marginal impression, base truncate, sides moderately arcuate and rather rapidly wider posteriorly, hind angles obtuse, margin distinctly visible from above in its entire length, rather broad and distinctly reflexed; disc with broad and moderately deep median triangular impression and a lateral fovea on each side, surface rather coarsely punctured, rather more densely toward the sides which are rather broadly margined with yellow. Elytra rather more than twice as wide as long, gradually narrowed to apex, umbone moderately prominent, sides serrate, disc slightly depressed with rows of punctures in the striæ and intervals nearly equal, those at the sides coarser in the striæ, color piceous very rarely with any bronze lustre colored with yellow as follows: a marginal band extending from the base to beyond the middle and becoming gradually broader posteriorly and enclosing a small black spot near its end, also a broad band of reddish yellow at apical third enclosing three spots, one at each end, the other sutural. Body beneath bluish-green shining, sparsely pubescent. Prosternum in front trisinuate moderately densely punctate. Abdomen sparsely punctate. Last ventral without trace of double margin or carina at tip. Length .50 inch; 12.5 mm.

This species well known in nearly all collections occurs in southwestern Texas.

A. macra, n. sp.—(Pl. I, fig. 5.) Form moderately elongate, feebly depressed, color piceous with distinct coppery bronze lustre, thorax with sides yellow, elytra with four slender, irregular transverse fasciæ. Head coarsely punctured, front feebly impressed, vertex with distinct carina. Thorax not twice as wide as long, apex emarginate, base truncate and scarcely wider than the elytra, sides moderately arcuate, margin visible from above and slightly reflexed, disc with median triangular and on each side an oblique impression terminating in a fovea near the base, surface rather coarsely, moderately densely and equally punctured, sides narrowly yellow. Elytra rather more than twice as long as wide, gradually narrowed from base to apex, sides serrate near the tip; disc feebly depressed, umbone feeble, and with striæ of rather coarse punctures finer at middle, intervals narrow and with a single series of fine punctures, the third and fifth more convex for a short distance at base, ornamented with yellow arranged in four narrow, transverse, rather irregular bands, one at middle, another between this and the base and two others in the posterior third, the third interval also bears a small spot near the base and there is one

between bands one and two at the margin, and two others between bands two and three. Prosternum in front trisinuate, coarsely but not densely punctured. Abdomen coarsely but not densely punctured, rather smoother at middle. Last ventral without trace of double margin or carina at tip. Body beneath coppery bronze sparsely clothed with whitish hair. Length .30—.44 inch; 7.5—11 mm.

This species is more slender than any other of the normal forms and viewed laterally the upper surface more arcuate and the head and thorax more deflexed than any species excepting *alacris* and *comata*.

Three specimens from Texas. For the two in my cabinet I am indebted to Mr. A. S. Fuller of Ridgewood, N. J.

A. robusta, n. sp.—(Pl. I, fig. 6.) Form robust, moderately depressed, color black with slightly bluish tinge, moderately shining, thorax yellow at the sides, elytra with three transverse bands interrupted at middle and an apical spot reddish yellow, surface with inconspicuous greyish hairs. Head coarsely not densely punctured, a smooth frontal line and feeble vertical carina. Thorax rather wider than twice the length, apex emarginate base truncate and very distinctly wider than the elytra, sides nearly straight, rapidly wider posteriorly, hind angles obtuse, margin very narrow, scarcely visible from above except at base, disc with shallow triangular median impression and an oblique impression on each side terminating in a fovea at base, surface sparsely punctured, more densely in the lateral impressions. Elytra twice as long as wide at base, sides nearly parallel at basal two-thirds, then narrowing to tip and moderately serrate, umbone not prominent, disc feebly striate at middle, more distinctly at sides and apex striæ with coarse but not serrate punctures, intervals with a single series of finer punctures, color nearly black with reddish-yellow transverse bands, the first extending from the margin slightly obliquely toward the suture, the second and third transverse, also an apical spot. Body beneath with slight bluish tinge, sparsely clothed with rather long greyish hair. Prosternum at middle and sides coarsely punctured, anterior margin trisinuate. Abdomen sparsely and rather finely punctured, last ventral with a very feeble trace of sub-marginal carina. Length .40—.44 inch; 10—11 mm.

Two specimens collected in Owen's Valley, California.

A. pubiventris, n. sp.—(Pl. I, fig. 7.) Form moderately robust, subdepressed, sparsely clothed with short, greyish hair, color black, shining, with a very feeble tinge of blue. Head coarsely and densely punctured, front slightly impressed, vertex with fine carina. Thorax nearly twice as wide as long, apex feebly bisinuate, slightly prolonged at middle over the head, base truncate, not wider than the elytra, sides moderately arcuate in front, widest at middle, slightly narrower at base, lateral margin very feeble not visible from above, becoming inferior at base; disc convex, median line well marked, a broad shallow impression at middle of base and a fovea on each side, surface coarsely and moderately densely punctured, at sides more finely and more densely punctured. Elytra as wide at base as thorax, umbone feeble, sides nearly straight at basal two-thirds and feebly convergent, apical third arcuately narrowed, margin finely serrate, disc subdepressed, striate, striæ with coarse punc-

tures, intervals with a single series of submuricate punctures, colored with reddish yellow in the following manner: a small spot at middle of base, sometimes wanting, two spots at basal third, a fascia at middle, three spots near the apex sometimes confluent. Body beneath black with feeble bluish lustre. Prosternum and side pieces coarsely punctured, anterior margin strongly trisinuate with a strong tooth on each side of the middle emargination. Abdomen at middle sparsely punctured, at sides densely and finely punctured and clothed with long whitish recumbent hair. Last ventral with the apical margin distinctly double. Length .34—.42 inch; 8.5—10.5 mm.

Several specimens from Owen's Valley, California. The ventral character of this species rarely distinguishes it in the present group. This species begins a small series in which the thorax is not margined with yellow.

A. plagiaticauda, n. sp.—(Motsch mss. *fide* Deyrolle, Pl. I, fig. 8.) Form robust, very feebly depressed, color coppery bronze, elytra with reddish spots arranged similarly to those of the preceding species, surface with sparse, erect, moderately long brownish hair. Head densely punctured, front feebly impressed, vertex with fine carina Thorax more than twice as wide as long, apex feebly emarginate very slightly prolonged at middle, base truncate, sides moderately arcuate and gradually wider to base which is not broader than the elytra, disc with median linear impression and vaguely concave at base, on each side at base a moderately deep fovea, surface uniform in color, rather sparsely punctured at middle and more densely at the sides. Elytra twice as long as wide, umbone feeble, sides nearly parallel and at apical third rapidly narrowing to tip, feebly serrate; disc very feebly depressed, striæ at middle less evident, punctured, intervals with a single series of finer punctures; surface coppery bronze shining maculate with red as follows: a small basal spot, a spot at basal third another external near the margin, a median short fascia, another at apical third also a small sub-apical spot at margin. Body beneath coppery bronze, sparsely pubescent. Prosternum trisinuate in front, at middle and sides coarsely punctured. Abdomen rather finely and moderately densely punctured. Last ventral with distinct double apical margin. Length .44 inch; 11 mm.

Two specimens before me from the Mariposa region of California.

Dr. Leconte's specimen was obtained from the cabinet of Count Mnizech of Paris with the above manuscript name. I do not know that it has ever been published. My specimen is due to the late Jules Thevenet of Paris and was collected by his brother in Mariposa County, California.

A. miliaris, n. sp.—(Pl. I, fig. 9.) Form moderately robust, subdepressed, color black tinged with bronze, surface sparsely clothed with erect black hair, elytra with numerous small yellow spots, forming two narrow transverse bands near the tip which are reddish at the margin. Head coarsely punctured, front slightly impressed, vertex with feeble carina. Thorax unicolored, twice as wide as long, apex feebly emarginate, base truncate, sides moderately arcuate in front, nearly straight posteriorly, margin narrow, scarcely visible from above

except in front and becoming much inferior posteriorly; disc with feeble median triangular impression, on each side a moderately deep fovea; surface coarsely and moderately densely punctured, slightly less densely at middle. Elytra as wide as the base of the thorax, umbone feebly prominent sides sinuate at middle, apical third rapidly narrowed and moderately serrate; disc feebly depressed, striate, striæ coarsely punctured the two outer striæ very deep and with a very deep short stria beneath the umbone, intervals flat on the disc outer ones convex and with a row of fine distant punctures; surface with numerous small yellow spots, forming at apical third two small irregular bands, which are red at the margin. Body beneath distinctly bronzed, very sparsely clothed with greyish hairs, longer and denser on the metasternal side-pieces. Prosternum in front distinctly trisinuate, coarsely punctured. Abdomen moderately coarsely but not densely punctured, last ventral with distinct double apical margin. Length .32—.42 inch; 8—10.5 mm.

Four specimens Texas. This species is easily known in this group by the elytral ornamentation and the very distinct sinuation of the sides.

A. sparsa, n. sp.—(Pl. I, fig. 10.) Body black shining with slight bronze lustre, surface with few short black hairs, form not robust, elytra with few small yellow spots widely scattered more numerous near the tip. Head coarsely punctured, front feebly impressed, vertex with faint carina. Thorax nearly twice as wide as long, apex feebly emarginate and but little narrower than the base, sides feebly arcuate, margin feeble, not visible from above; disc with triangular median impression and a fovea on each side at base; surface coarsely punctured, very sparsely at middle, more densely at the sides, color uniform. Elytra as wide as base of thorax, umbone moderately prominent, sides gradually converging from base to apex, more rapidly at apical third and moderately serrate; disc moderately convex, striate, striæ obliterated at middle near the base, moderately punctured, intervals flat, uniseriately punctulate, the three outer intervals convex and the third more elevated at base; surface black, shining, with slight bronze tinge and with small yellow spots very sparsely placed, arranged vaguely in a median row of five or six and a submarginal series consisting of three or four groups. Body beneath black with slight bronze lustre, with few whitish hairs. Prosternum trisinuate in front, very sparsely punctured. Abdomen very sparsely and finely punctured, last ventral with distinct double margin. Length .38 inch; 9.5 mm.

I have seen but two specimens of this species, both similar in style of marking, collected in Colorado, that in the cabinet of Dr. Leconte from Manitou while that from Mr. Ulke is without special locality.

A. tuta, n. sp.—(Pl. I, fig. 11.) Black with cupreous lustre, form moderately robust, surface with few black erect hairs, thorax margined with yellow, elytra with three fasciæ interrupted at middle and an apical marginal spot yellow. Head coarsely and densely punctured, a faint frontal impression and vertical carina. Thorax nearly twice as wide as long, apex feebly emarginate, base truncate, sides moderately arcuate and gradually but feebly diverging from apex to base; disc with feeble median triangular impression with a moderate

fovea on each side; surface shining, coarsely and deeply but not very densely punctured except in the lateral foveæ, sides with yellow border, margin narrow, not visible from above, inferior in the greater part of its extent. Elytra as wide at base as thorax, umbone feebly prominent, sides gradually narrowing to apex and acutely serrate, disc feebly depressed, striate, striæ very faint at middle near base, but with coarse punctures closely placed, intervals flat except externally, uniseriately punctulate; surface rather brightly cupreous and with three bands of yellow interrupted at middle, the sub-basal oblique, the others transverse, also a small spot on the margin near the tip. Body beneath brilliantly cupreous, sparsely hairy. Prosternum distinctly trisinuate in front, sparsely punctured. Abdomen sparsely and rather finely punctate, last ventral with scarcely any trace of subapical transverse carina. Length .32 inch; 8 mm.

Two specimens St. George, Utah, collected by Dr. Edw. Palmer.

A. Hepburnii, Lec.—(Pl. I, fig. 12.) Form moderately robust, subdepressed, sparsely clothed with grey and black hair intermixed, color piceous distinctly bronzed, thorax with yellow side margin, elytra with lateral and subsutural longitudinal stripe united by transverse band at the middle of the elytra, two transverse bands interrupted at middle and subapical spot yellow. Head coarsely and moderately densely punctured, front very feebly impressed, vertex with feeble carina. Thorax nearly twice as wide as long, apex feebly emarginate and slightly lobed at middle, base truncate, sides very feebly arcuate or nearly straight, gradually divergent to base, margin very narrow, not visible from above except in front, posteriorly inferior; disc with median triangular impression and a rather deep but broad lateral oblique impression terminating in a fovea posteriorly; surface rather coarsely but not densely punctured at middle, more densely at the sides which are rather broadly margined with yellow. Elytra as wide as the thorax, umbone feeble, sides feebly narrowing from base, more rapidly at apical third and rather finely serrate; disc subdepressed, finely striate, striæ moderately coarsely but not very closely punctured, intervals flat, uniseriately punctate; surface ornamented with yellow as follows: a lateral and a subsutural irregular stripe which extend to the middle of the elytra and united by a transverse band, two irregular transverse bands posterior to the latter interrupted at the suture, and a subapical spot. Body beneath dark æneous, sparsely clothed with greyish hair. Prosternum in front distinctly trisinuate, sparsely punctured at middle, side pieces more densely and coarsely. Abdomen sparsely punctured, last ventral with feeble trace of subapical transverse carina. Length .40 inch; 10 mm.

Occurs in California in the regions adjacent to the western base of the Sierra Nevada Mountains.

ACMÆODERÆ EMARGINATÆ.

The thorax is emarginate above, the anterior angles cover a portion of the eyes, the prosternum is shortened, its alæ not attaining the angles, the anterior margin usually straight sometimes broadly but very feebly emarginate from angle to angle.

The species are few in number and are as follows:

Thorax unicolored or with merely a very small spot at sides.....1.
Thorax broadly margined with yellow.....5.
1.—Lateral margin of thorax scarcely visible from above.
Elytra variegated over the entire surface.....**acuta.**
Elytra with three reddish spots at the sides behind the middle...**Dohrni.***
Lateral margin visible in its entire extent from above, thorax distinctly wider than the elytra.....2.
2.—Apical margin of last ventral single, no trace of carina.....**connexa.**
Apical margin of last ventral double.....3.
3.—Tooth of anterior claws acute nearly as long as the claw; elytra tipped with red.....**stellaris.**
Tooth of anterior claws with free edge rectangular; elytra not ornate with red.....4.
4.—Surface bluish; thorax distinctly wider than the elytra.....**ornata.**
Surface cupreous; thorax very little wider than the elytra...**flavosticta.**
5.—Thorax wider than the elytra, margin very evident.....**decipiens.**
Thorax not wider than the elytra, margin feeble.....6.
6.—Thoracic margin inferior posteriorly; disc coarsely and densely punctured.....**variegata.**
Thoracic margin lateral but narrow; disc sparsely punctured.....**mima.**

A. acuta, Lec.—(Pl. I, fig. 14.) This species resembles *connexa* in form, and markings but is usually smaller and with other differences as follows: Thorax not wider at base than the elytra, margin narrow and scarcely visible from above and somewhat inferior posteriorly. Last ventral segment rarely with feeble sub-apical carina. Length .30—.38 inch; 7.5—9.5 mm.

I have great doubts concerning the validity of this species. I have many specimens of *connexa* and *acuta* and am able thus far to separate them in my cabinet but the characters as seen above are feeble and may readily escape observation. I leave the species in its present condition with the hope that some future student may find characters which now escape my observation.

Occurs with the preceding species. California and Utah.

A. connexa, Lec.—(Pl. I, fig. 13.) Form depressed, color piceous with distinct æneous tinge, surface with erect black hairs sparsely placed, elytra ornamented with yellow forming a lateral and subsutural stripe extending to middle and very much contorted, united at their apices and posteriorly two irregular transverse bands interrupted at suture and an apical spot. Head coarsely and densely punctured, front convex, vertex feebly carinate. Thorax twice as wide as long, apex emarginate base truncate, sides rather broadly arcuate and wider posteriorly, hind angles broadly rounded, margin moderately wide, visible from above in its entire extent; disc with moderately deep triangular median impression, and a lateral fovea at base surface coarsely punctured, more densely at the sides than at middle. Elytra narrower at base than the thorax, umbone moderate, sides gradually narrowed to apex, more rapidly at apical third and rather strongly serrate; disc depressed, striate,

* This species in a cabinet arrangement may be placed after *flavosticta*, otherwise it interrupts a very natural sequence of elytral markings.

striæ rather coarsely punctured, intervals flat at middle convex at the sides, each with a single row of minute punctures; surface colored as above. Body beneath dark bronze, sparsely clothed with greyish hairs. Prosternum broadly emarginate in front, the alæ not attaining the anterior angles, surface sparsely punctured, side pieces more densely and coarsely. Abdomen sparsely punctured, last ventral without trace of subapical carina. Length .44 inch; 11 mm.

Occurs from the Coast Range of California to western Utah. Its markings resemble *Hepburnii* as well as the preceding species, and are very variable. Specimens very rarely occur with a small yellow spot on the side of the thorax.

A. stellaris, Chev.—(Pl. I, fig. 18.) Form depressed, surface distinctly bronzed, sparsely clothed with erect black hair, elytra with numerous small yellow spots often uniting forming intricate reticulations, sides at tip red. Head densely punctured, front feebly concave, vertex feebly carinate. Thorax usually unicolored, rarely with a small lateral spot, twice as wide as long, apex emarginate, base truncate, sides strongly arcuate, margin moderate, slightly reflexed and visible in its entire extent from above; disc with median triangular impression moderately deep at middle posteriorly, lateral oblique impressions moderately deep; surface coarsely punctured, rather sparsely at middle, more densely at the sides. Elytra narrower at base than the thorax, umbone moderate, sides gradually narrowed from base to apex, sides moderately serrate; disc depressed, striate, striæ rather coarsely but not closely punctured, intervals flat with a single series of fine punctures on each; surface black slightly bronzed with narrow intricate yellow markings, sides at the tip red. Body beneath dark bronze, sparsely pubescent. Prosternum as in *connexa*. Abdomen rather sparsely punctured, last ventral with distinct double margin at tip. Length .46 inch; 11.5 mm.

This species is one of the most easily recognizable in our fauna. The claws of the anterior tarsi have the tooth or lobe nearly as long as the upper portion of the claw. It occurs in western Texas and also in Mexico.

A. ornata, Fab.—(Pl. I, fig. 15.) Form robust, moderately depressed, sparsely clothed with erect black hair, surface bluish, elytra sparsely maculate with small yellow spots, often nearly immaculate. Head coarsely and densely punctured, front with very feeble impression, vertex with distinct carina. Thorax twice as wide as long, apex emarginate, base truncate, sides rapidly broader posteriorly, behind the middle rather strongly arcuate, margin moderate, distinctly visible in its entire extent from above; disc with distinct median triangular impression and with oblique lateral impression terminating in a fovea at base; surface rather coarsely and deeply punctured, very densely at the sides less densely at middle. Elytra narrower at base than the thorax, umbone moderately prominent, sides feebly convergent from base, more rapidly at apical third and serrate; disc with striæ less deep than at the sides, striæ rather coarsely punctured, less so at middle, intervals flat and with a single row of punctures, those at middle nearly as large as the punctures of the striæ. Body beneath metallic blue, sparsely hairy. Prosternum as in *connexa*. Abdomen very sparsely punctured, last ventral with feeble subapical transverse carina. Length .34—.44 inch; 8.5—11 mm.

Specimens of this species occur with a small, lateral, thoracic spot, sometimes on one side only.

Occurs over nearly our entire country east of the Rocky Mts.

A. flavosticta, n. sp.—(Pl. I, fig. 16.) Form subdepressed, surface with cupreous lustre and with few erect black hairs. Head coarsely and deeply punctured, front with distinct impression, vertex not carinate. Thorax more than twice as wide as long, apex emarginate, base truncate, sides moderately arcuate, margin distinctly visible from above; disc with moderate median triangular impression, lateral oblique impressions rather deep; surface with coarse, deep sparsely placed punctures, denser at the sides, surface unicolored. Elytra as wide at base as the thorax, sides gradually converging from base, more rapidly at apical third and rather coarsely serrate, umbone rather feeble; disc feebly convex, striate, striæ rather coarsely and serrately punctured, intervals slightly convex and with a single series of fine punctures; surface ornate with yellow as follows: an irregular spot at middle of base, a lateral stripe from humerus to middle with a branch toward the suture, posteriorly two interrupted fasciæ. Body beneath bronzed, shining, with very short, sparse pubescence. Prosternum as in *connexa*. Abdomen rather coarsely and sparsely punctured, last ventral with distinct double apical margin. Length .28—.36 inch; 7—9 mm.

The elytral markings of this species somewhat resemble certain forms of *pulchella*. The name given is an unpublished one of Sturm found attached to it in some European cabinets. The same species was mentioned in the List by Dr. Leconte as *croceonotata* Gory.

Occurs in Lower California (Peninsula), collected by Mr. John Xantus de Vesey.

A. Dohrni, n. sp.—(Pl. I, fig. 21.) Form moderately depressed, surface shining, bronzed and sparsely clothed with black hair, elytra with three marginal spots behind the middle, the central spot larger. Head coarsely and moderately densely punctured, front convex, vertex with feeble trace of carina. Thorax unicolored, twice as wide as long, apex moderately emarginate, base truncate, sides feebly arcuate, margin narrow, visible from above for a short distance in front, posteriorly inferior; disc with vague median impression and a shallow fovea on each side at base; surface coarsely but not densely punctured. Elytra as wide as the thorax, sides subparallel, gradually narrowed at apical third which is serrate, umbone moderate; disc depressed, surface striate, striæ deeper at sides and apex, punctured with moderate, not closely placed punctures, intervals flat with a single series of moderate punctures. Body beneath bronzed, shining, sparsely hairy. Prosternum very sparsely punctured at middle, at sides moderately and coarsely. Abdomen very sparsely punctured, more densely at the sides of the first segment; last ventral without trace of subapical carina. Length .32 inch; 8 mm.

The elytral markings consist of three reddish spots on the lateral margin, the first about at the middle, the second at three-fourths extending inwards to the middle of the elytra, the third between this and the apex. This species resembles considerably one of the next

group, *mariposa*, which is however bright blue and has a different prosternum.

I dedicate this species with great pleasure to Dr. C. A. Dohrn of Stettin, by whom it was sent with a number of other species, for naming. There is also a second specimen in Mr. Ulke's cabinet.

Occurs in California.

A. decipiens, Lec.—(Pl. I, fig. 17.) Form moderately robust, subdepressed, surface distinctly bronzed and with erect black hairs. Head coarsely and densely punctured, front impressed, vertex with distinct carina. Thorax more than twice as wide as long, very little wider at base than apex, apex emarginate base truncate, sides rather strongly arcuate, margin moderately wide, distinctly reflexed and visible in its entire extent from above; disc with feeble median triangular impression and moderately deep lateral foveæ; surface coarsely, deeply and moderately densely punctured, nearly equally over the entire surface, sides rather broadly yellow. Elytra narrower at base than the thorax, umbone moderate, sides gradually and at apical third more rapidly converging to apex and serrate; disc feebly convex, striate, (striæ feeble at middle near base), striæ rather coarsely punctured, intervals at apex and sides convex and uniseriately punctulate; surface distinctly bronzed and intricately marked with yellow. Body beneath bronzed, shining, sparsely hairy. Prosternum as in *connexa*. Abdomen rather coarsely but sparsely punctured, last ventral with distinct double apical margin. Length .42 inch; 10.5 mm.

I have seen but one specimen of this species brought by Dr. Coues from Arizona.

A. variegata, Lec.—(Pl. I, fig. 19.) Form moderately robust, disc nearly flat, surface faintly bronzed, with erect black hair, elytra with three yellow bands and an apical spot. Head coarsely punctured, front convex, vertex with fine carina. Thorax margined with yellow at the sides, twice as wide as long, apex emarginate, base truncate, sides moderately arcuate and when viewed directly from above slightly sinuate posteriorly, margin very narrow, not visible from above, inferior posteriorly; disc with moderate median triangular impression, and with oblique lateral impressions foveate at base; surface opaque, densely and coarsely punctured becoming cribrate at the sides. Elytra as wide as thorax, sides parallel and at apical third gradually narrowed to tip; disc flat, striate, striæ coarsely and closely punctured, intervals flat, each with a row of moderately coarse punctures; surface bronzed with three yellow bands nearly transverse and of variable width and a subapical spot. Body beneath very dark bronze, sparsely clothed with greyish hair. Prosternum as in *connexa*. Abdomen sparsely punctate last ventral without trace of subapical carina. Length .36 inch; 9 mm.

This species bears considerable superficial resemblance to *tuta* of the preceding group but is readily known by the form of the prosternum and the entire absence of any subapical carina to the last ventral.

Several specimens were collected by Dr. Palmer at St. George, Utah.

This species has nothing to do with *pulchella* and *mixta* with which it has been placed in synonymy by Mr. Crotch and Mr. Edw. Saunders who acted probably under advices from Mr. C. (see Catalogue Buprest. London, 1871).

A. mima, Gory.—(Pl. I, fig. 20.) Form robust, black, surface with very feeble bronze lustre, and with few erect black hairs, sides of thorax yellow, elytra with lateral and submedian stripe extending three-fourths to tip and united by several transverse bands, posteriorly two narrower transverse bands. Head coarsely and densely punctured, front feebly impressed, vertex without carina. Thorax more than twice as wide as long, apex emarginate base truncate, sides moderately arcuate and gradually wider from apex to base, margin narrow but visible from above; disc with shallow median triangular impression and a moderate oblique impression on each side; surface not coarsely and rather sparsely punctured at middle, more densely toward the sides. Elytra as wide as thorax, sides subparallel ♀ or gradually ♂ narrowed from base, apical third arcuately narrowed to tip; disc striate at the sides and tip, at middle near the base feebly, with rows of moderately coarse punctures, intervals flat, uniseriately punctulate. Body beneath dark bronze, sometimes feebly violet, sparsely pubescent. Prosternum as in *connexa*. Abdomen very sparsely punctate, last ventral with distinct double apical margin. Length .38—.44 inch; 9.5—11 mm.

This species preserves its type of marking with as great uniformity as any species in our fauna.

Occurs in Texas also in Mexico.

ACMÆODERÆ TRUNCATÆ.

In these species the anterior margin of the thorax forms a continuous line, the upper margin being truncate or very feebly emarginate. The alæ of the prosternum attain the anterior angles of the thorax beneath. The head is inserted merely to the hind margin of the eyes. The species are all of rather robust facies, form cylindrical and convex above. Many of the species are of small size.

They are distinguished as follows:

Antennæ with fifth joint suddenly broader than the fourth which is cylindrical.....1.

Antennæ gradually broader from the third joint, fourth joint oval and similar to the fifth.....9.

1.—Last ventral with subapical carina more or less distinct.....2.

Last ventral without trace of subapical carina; form cylindrical..... 7.

2.—Thorax margined with yellow at the sides.....3.

Thorax without yellow margin.....4.

3.—Thorax arcuately narrowing from base to apex; striæ of the elytral disc finely punctured.....**pulchella.**

Thorax wider at middle than the elytra at base, sides strongly arcuate; striæ of disc coarsely punctured.....**obtusa.**

4.—Thorax wider in front of base than the base of the elytra margin rather broad and entirely lateral.....**consors.**
Thorax not wider than the elytra, discal impressions small.....5.
5.—Apex of thorax narrower than the base. Abdomen coarsely deeply and densely punctate.....**subbalteata.**
Apex of thorax not narrower than the base, sides slightly sinuate in front of basal angles.....6.
6.—Abdomen similarly punctured over the entire surface; thorax densely punctured.....**texana.**
Abdomen with last two segments much more densely punctured; thorax sparsely punctured.....**versuta.**
7.—Abdomen with last three segments more densely and finely punctured than the preceding.....**guttifera.**
Abdomen with segments equally but sparsely punctured.....8.
8.—Thorax gradually narrowed from base to apex, not arcuate, disc sparsely punctured. Elytra with feeble punctures on the disc.....**mariposa.**
Thorax with sides arcuate, disc densely punctured. Elytra with rather coarse punctures.
Elytra irregularly guttate.....**culta.**
Elytra with a submarginal and median yellow stripe on each.
quadrivittata.
9.—Margin of thorax entirely obliterated except for a short distance at base. Elytra with stripes as in *quadrivittata*.....**gemina.**

A. pulchella, Herbst.—(Pl. I, fig. 22.) Form variable but always with the disc more or less convex, surface sparsely clothed with short brownish hair, thorax always yellow at the sides, elytra extremely variable in markings often entirely yellow except the umbone. Head coarsely and densely punctured, front feebly impressed, vertex with feeble carina. Thorax convex, not twice as wide as long, apex and base truncate, sides regularly arcuate from apex to base, margin narrow not visible from above; disc convex, median line feebly impressed and with feeble trace of the triangular impression, lateral oblique impressions reduced to a small fovea on each side of middle; surface moderately densely and evenly punctured. Elytra as wide as thorax, umbone rarely even feebly prominent, form variable, often robust, sometimes gradually narrowing from base to tip and rather finely serrate; surface striate, outer striæ scarcely deeper, moderately punctured, intervals flat, uniseriately punctulate; markings variable, surface always bronzed. Body beneath coppery-bronze shining sparsely hairy. Prosternum gradually arcuate in front, the alæ attaining the anterior angles. Abdomen sparsely punctured, but somewhat variable, last ventral with distinct double apical margin. Length .22—.40 inch; 5.5—10 mm.

The markings of this species are so extremely variable that with isolated specimens it would be easy to describe four or five species. I have now sixty specimens before me and have examined in selecting my own series five times that number and have seen every intermediate form

The following varieties may be mentioned:

var. **pulchella,** Hbst.—(Pl. I, fig. 22.)

A marginal band from humerus to middle gradually broader behind and sinuate within, several dorsal spots, two transverse fasciæ between the middle and apex.

This variety occurs most commonly from Pennsylvania to Georgia.

var. **arizonæ.**—(Pl. I, fig. 25.)

Form slender. Elytra with marginal stripe extending from humerus to middle, terminating in a narrow transverse band nearly reaching the suture, a moderately large basal spot, two transverse fasciæ behind the middle and a subapical spot.

One specimen from Arizona and several, more robust, from Florida.

var. **mixta,** Lec.—(Pl. I, fig. 26.)

In this form the basal spot becomes larger and longer and sends branches to the side, the first transverse fascia at middle becomes broader and sends a branch forward, the two posterior bands are also broader and frequently broken up.

This variety occurs in Texas, Colorado and Utah.

var. **immaculata.**

Elytra entirely yellow, or with the umbones tipped with brown.

This I have from Owen's Valley, California and Utah.

This is probably the most widely distributed species in our fauna as will be seen by the above given localities.

A. obtusa, n. sp.—(Pl. I, fig. 29.) Form robust, subdepressed, nearly as obtuse posteriorly as in front, surface greenish blue, sparsely clothed with short black hair, thorax yellow at the sides, elytra with median basal spot, three irregular transverse bands and apical spot yellow. Head coarsely and densely punctured, front feebly impressed, vertical carina obsolete. Thorax more than twice as wide as long wider at middle than at base, apex truncate, at middle slightly prolonged over the head, base truncate, sides rather strongly arcuate, margin narrow and entirely invisible from above; disc with feeble median line terminating in a very vague basal impression, a very slight fovea at base on each side of middle; surface moderately coarsely and densely punctured, equally over the entire surface. Elytra as wide at base as the thorax, umbone feebly prominent, sides subparallel or very feebly converging, at apical fourth arcuately narrowing to an obtuse apex, sides very finely serrate near the tip; disc striate over the entire surface, striæ coarsely and deeply punctured, intervals flat, rather coarsely punctate; surface greenish blue marked with a median basal spot, three irregular transverse bands and an apical spot, yellow. Body beneath bluish green, sparsely pubescent. Prosternum as in *pulchella.* Abdomen coarsely and moderately densely punctate especially on the last two segments. Length .36—.40 inch; 9—10 mm.

Eight specimens from Texas. This species cannot be confounded with any other than some of the varieties of *pulchella* from which the form of thorax will distinguish it.

A. consors, n. sp.—(Pl. I, fig. 30.) Form moderately robust, surface aeneous, and with very sparsely placed erect brownish hairs. Head coarsely and densely punctured, front impressed, vertex with distinct carina. Thorax twice as wide as long, unicolored, apex and base truncate, sides arcuate broadest at middle, margin moderate, slightly reflexed, distinctly visible from above; disc with distinct median triangular impression and with a moderate oblique impression terminating in a fovea on each side of middle; surface shining, moderately densely but not very coarsely punctured, equally over the entire surface. Elytra as wide at base as thorax, umbone feebly prominent, sides feebly converging from base, more rapidly at apical third and rather strongly serrate; disc slightly convex, striæ rather deep over the entire surface and with coarse deeply impressed punctures, intervals narrow, convex, and with a single series of fine punctures; surface ornamented with yellow forming very irregular transverse bands. Body beneath dark bronze very sparsely punctate. Prosternum as in *pulchella*. Abdomen sparsely punctate, last ventral with very short subapical carina. Length .30 inch; 7.5 mm.

One specimen Texas, easily known from any in the group from the fact that the sculpture of the thorax above is rather that of the preceding group.

A. subbalteata, Lec.—(Pl. I, fig. 31.) Form moderately robust, feebly depressed, color blackish subopaque, thorax with feeble bronze lustre, surface with sparsely placed short semi-erect grey hairs, elytra with subbasal and median band and two spots posteriorly. Head coarsely and densely punctured, front convex vertex not carinate. Thorax unicolored, twice as wide as long, convex, apex and base truncate, sides moderately arcuate, margin narrow not visible from above, inferior posteriorly; disc convex median line feebly impressed terminating in a small fovea at base, on each side a feeble oblique impression terminating in a shallow fovea; surface coarsely and densely punctured at middle, more densely at sides. Elytra as wide at base as the thorax, umbone very feeble, sides gradually narrowing to apex and finely serrate; disc feebly convex and with striæ of very coarse and deep but distinct punctures, intervals very narrow and with distant finer punctures; surface pitchy black with feeble trace of lustre and marked with two yellow bands, the first subbasal, the second median posterior to which are two irregular spots. Body beneath dark bronze subopaque. Prosternum as in *pulchella*. Abdomen finely alutaceous, coarsely and moderately densely punctured, last ventral with distinct subapical transverse carina. Length .24 inch; 6 mm.

A very distinct little species of the form of *culta*.

One specimen, Peninsula of California.

A. texana, Lec.—(Pl. I, fig. 32.) Form cylindrical, slightly depressed, color piceous, surface feebly bronzed and sparsely clothed with erect black hairs. Head densely punctate, front convex vertex slightly carinate. Thorax unicolored, very nearly twice as wide as long, apex very little narrower than base, truncate, slightly prolonged over the head at middle, sides moderately arcuate in front, feebly sinuate in front of base, margin very narrow, not visible from above, inferior posteriorly; disc convex, median line slightly impressed in front, a vague depression posteriorly and on each side at base a small fovea; surface coarsely punctured, moderately densely at middle and at sides more

densely in the usual position of the oblique impression. Elytra as wide as the thorax at base, subcylindrical, gradually narrowed to tip and finely serrulate; disc with striæ of moderate punctures not closely placed, intervals flat, uniseriately punctulate; surface rather irregularly maculate with yellow without any distinct pattern. Body beneath dark bronze, sparsely pubescent. Prosternum as in *pulchella*. Abdomen sparsely punctured, last ventral with very distinct submarginal carina. Length .26 inch; 6.5 mm.

This species is of the size form and general aspect of *culta* but may be known by the surface having the usual hairs and not setæ and by the last ventral having a distinct subapical carina.

Two specimens Texas.

A. versuta, n. sp.—(Pl. I, fig. 33.) Form cylindrical, slightly depressed, very little narrower at tip than in front, piceous slightly bronzed, sparsely clothed with erect brownish hairs. Head densely punctate, front feebly impressed, vertex not carinate. Thorax unicolored, nearly twice as wide as long, apex slightly narrower than base, slightly prolonged at middle over the head, sides rather strongly arcuate and slightly sinuate in front of base, margin very narrow not visible from above; disc convex, a very slight depression at middle of base, on each side a more distinct depression; surface sparsely punctured at middle, very densely at the sides. Elytra as wide as thorax, sides parallel, at apical third arcuately narrowing and finely serrate; disc moderately convex, striate, outer striæ deeply impressed, punctured rather distantly, intervals flat, uniseriately punctulate; surface with yellow spots arranged in a discal row of fine equally distant, a marginal series of five or six irregularly placed. Surface beneath bronzed sparsely hairy. Abdomen with the first three segments sparsely punctured, last two more densely, last ventral with distinct double margin at tip. Length .26 inch; 6.5 mm.

Superficially this species greatly resembles *guttifera* but the abdominal characters abundantly distinguish it. The last two ventral segments are in the present species more densely punctured than those which precede, the punctures of the fifth segment are coarse, those of the fourth unequal, the punctures nearest the base of the segment are finer and denser than those at the tip.

One specimen Mariposa, California.

A. guttifera, Lec.—(Pl. I, fig. 34.) Form cylindrical subdepressed, surface piceous, faintly bronzed, sparsely clothed with brownish hairs. Elytra with three dorsal spots the first median the other two posterior, a marginal series of five unequally placed. Body beneath bronzed. Ventral segments unequally punctured, the first two very sparsely at middle and somewhat more densely at the sides, the second at sides rather more densely pubescent; last three segments subopaque, very densely and very finely punctured and clothed with moderately long fine, silken, erect hair which curves toward the front; fifth ventral without any trace of subapical carina. Length .28 inch; 7 mm.

Of this species I have seen but one specimen from Fort Tejon, California, which is so abundantly distinct by its abdominal characters as

to require no further mention. Its description is in other respects in full accord with the preceding species.

A. mariposa, n. sp.—(Pl. I, fig. 35.) Form subdepressed, surface bright blue, sparsely clothed with erect brownish hair, elytra with a red band at apical third interrupted at middle, a marginal spot near the middle, another near the tip. Head moderately densely punctured, front flattened, vertex not carinate. Thorax unicolored, less than twice as wide as long, apex very feebly emarginate, sides at anterior angles very feebly arcuate, posteriorly straight and gradually divergent, margin very narrow not visible from above, at base inferior; disc with median line feebly impressed in front at base slightly flattened, on each side a feeble fovea; surface rather coarsely but not densely punctured at sides more densely. Elytra at base as wide as the thorax, umbone feebly prominent, sides feebly convergent from the base, at apex arcuately narrowed and distinctly serrate; disc slightly depressed, striæ visible at sides and apex, obliterated at middle and with rather small punctures not closely placed, intervals flat, uniseriately punctulate. Body beneath bluish green, sparsely pubescent. Prosternum truncate. Abdomen very sparsely punctulate, last ventral without trace of subapical transverse carina. Length .28 inch; 7 mm.

This species is peculiar in its markings and surface color, and by the sides of the thorax being straight from near the anterior angles.

I have seen but one specimen collected by Mr. Alphonse Thevenet at Mariposa, California, and given to Dr. Leconte by the late Jules Thevenet of Paris.

A. culta, Weber.—(Pl. I, fig. 36.) Form robust, subcylindrical, surface slightly bronzed, with sparsely placed short erect setæ, elytra with a dorsal series of four or five yellow spots and a marginal series which in some specimens send a branch to the dorsal spot. Head densely punctured, front convex, vertex feebly carinate. Thorax unicolored, nearly twice as wide as long, apex and base truncate, sides arcuate and widest in front of base, margin narrow, not visible from above; disc convex with three small basal foveæ; surface coarsely and densely punctured. Elytra as wide at base as the thorax, sides subparallel from base, apex gradually narrowed and finely serrate; disc convex, striate, striæ with moderately coarse punctures, intervals more coarsely punctulate than usual. Body beneath bronzed green, sparsely pubescent. Prosternum truncate. Abdomen coarsely and moderately densely punctured, last segment without trace of carina. Length .20—.30 inch; 5—7.5 mm.

The markings of the elytra are of course subject to great variation and may be entirely without spots. The form described is the usual condition, sometimes the dorsal series of spots becomes united in one irregular stripe or the surface may be nearly as intricately reticulate as in *stellaris*.

Occurs everywhere in the United States east of the Rocky Mountains, and very common.

A. quadrivittata, Horn.—(Pl. I, fig. 37.) Form cylindrical, convex, surface faintly bronzed, with sparsely placed short erect setæ, elytra with a marginal and median yellow stripe on each. Head densely and coarsely punctured, front flat, vertex carinate. Thorax convex, unicolored, apex truncate, sides gradually arcuate to base, margin very narrow, not visible from above, inferior at base; disc with median line feebly impressed in front, a faint impression at middle of base, one more distinct on each side; surface moderately densely punctured, intervals shining. Elytra as wide as thorax, sides feebly narrowing to apex and very finely serrulate, umbone feebly prominent; disc convex with distinct and regular striæ of moderately coarse punctures, intervals flat, uniseriately punctulate. Body beneath bronzed, sparsely pubescent. Prosternum truncate. Abdomen finely alutaceous, moderately densely punctate, last ventral without apical carina. Length .20 inch; 5 mm.

I have seen numerous specimens of this species and find the markings of the elytra invariable. In size it varies a very little above and below that given above.

Specimens occur from Fort Mojave, California, and St. George, Utah, Dr. Palmer.

A. gemina, n. sp.—(Pl. I, fig. 37.) Form cylindrical, surface opaque. Thorax with yellow spot at sides, sides moderately arcuate and narrower at base than at middle, margin entirely obliterated except at basal third; disc opaque convex, punctures variolate and very densely placed. Body beneath bronzed, subopaque, sparsely pubescent. Prosternum truncate, abdomen coarsely and moderately densely punctured, last three segments decidedly rugulose, last ventral in great part yellow and without trace of subapical carina. Length .22 inch; 5.5 mm.

In all other respects this species resembles the preceding, the elytra being similarly vittate. The most striking character is found in the form of the antennæ. These become gradually broader from the third joint instead of (as in the other species) having the fifth joint suddenly broader than the fourth. This character with the almost entire obliteration of the thoracic margin, mark it as a peculiar species.

One specimen in my cabinet from California, San Bernardino Valley. Mr. Ulke has another also from California, without special locality.

ACMÆODERÆ LOBATÆ.

The prosternum in front is furnished with a broad lobe, emarginate at middle; the angles prominent, on each side of the lobe is a slight notch beyond which the margin is straight to the angles. The humeral angles of the elytra are prolonged and the sides of the elytra so deeply sinuate opposite the metasternum that the end of the coxal plate is distinctly visible from above.

One species constitutes this group.

A. gibbula, Lec.—(Pl. I, fig. 38.) Form robust, surface distinctly bronzed, sparsely clothed with short erect hairs, elytra with a discal row of five large yellow spots, a marginal row of three or four and between the two a row of three red spots. Head moderately densely punctured, front slightly impressed, vertex feebly carinate. Thorax nearly twice as wide as long, apex truncate, base sinuate at middle and near the hind angles arcuate, sides very feebly arcuate and gradually wider from apex to base, margin moderate, slightly visible from above; disc convex, a vague median impression at base, on each side an oblique impression terminating in a moderately deep fovea at base; surface unicolored, shining, sparsely punctured at middle, more densely at the sides. Elytra as wide as the thorax, umbone prominent, humeral angles prolonged beneath the angles of the thorax, sides deeply sinuate opposite the metasternum, then arcuately narrowing to tip, sides serrate; disc moderately convex, striate, striæ feeble at middle and with coarse punctures moderately closely placed, intervals flat with a single series of fine punctures. Body beneath bronzed, shining. Prosternum in front strongly lobed, lobe emarginate at middle, alæ of prosternum attaining the anterior angles. Abdomen sparsely punctured at middle, much more densely at the sides and rather densely clothed with long silken, whitish pubescence; last segment with distinct double apical margin. Length .46 inch; 11.5 mm.

Occurs in Arizona.

ACMÆODERÆ GRACILIFORMES.

These species are slender and about four times as long as wide, the body above arcuate from head to tip. Their aspect is much that of certain *Agrilus*. The two species vary considerably in their prosternal characters, but agree in their slender tarsi, which are especially on the posterior pair of legs greater than half the length of the tibia in one species and very nearly as long as the tibia in the other.

They are distinguished as follows:

Prosternum emarginate at middle and on each side angulate, alæ attaining the anterior angles. Thorax above unicolored. Abdomen more densely punctured at the sides with longer hair.....**comata.**

Prosternum squarely truncate beneath, alæ attaining the angles. Thorax above yellow at the sides. Abdomen very sparsely punctured.....**alacris.**

These two species have affinities with two of the preceding groups by the form of the margin of the sternum but being very evidently more closely allied to each other than to any other species I have given the tarsal character preference in forming them in a group by themselves. They are both from California and lead us to expect other species with similar characters from Mexico.

A. comata, Lec.—(Pl. I, fig. 39.) Form slender, *Agrilus* like, arched, piceous, sparsely clothed with blackish hair, elytra with few small yellow spots. Head coarsely punctured, front impressed, vertex not carinate. Thorax not twice as wide as long, as wide at apex as base, apex truncate, sides slightly arcuate in front then gradually narrower to base, margin feeble, not visible

from above, inferior and less distinct posteriorly; disc with broad median impression deeper behind and a rather deep but small impression on each side at base; surface coarsely punctured, sparsely at middle, more densely at the sides. Elytra as wide at base as the thorax, umbone feeble, rather more than two and a half times as long as wide, sides gradually narrowed to tip and acutely serrate; disc moderately convex, with striæ of large somewhat confluent punctures, intervals 3—5—7 subcostiform; surface with small yellow spots arranged in a dorsal series of three or four and a submarginal series. Body beneath feebly bronzed. Prosternum with the alæ attaining the anterior angles, at middle with short lobe emarginate in front and rather strongly angulate at the sides. Abdomen sparsely punctured at middle, more densely at the sides and clothed with rather long greyish hairs, last ventral without subapical carina but with rather deep but broad marginal groove. Tarsi slender not dilated, and nearly as long as the tibiæ. Length .38 inch; 9.5 mm.

One specimen from near Fort Yuma, California.

A. alacris, n. sp.—(Pl. I, fig. 40.) Form of *comata*, color metallic green, sides of thorax and elytra ornate with yellow, surface with short brownish hairs. Head densely punctured, front convex, vertex not carinate. Thorax one and a half times as wide as long, apex very feebly emarginate and slightly prolonged at middle over the head, sides feebly arcuate in front, nearly straight and feebly divergent posteriorly; margin feeble not visible from above; disc with feeble median impression and a punctiform fovea on each side at base; surface densely and coarsely punctured, sides margined with yellow which is less densely punctured. Elytra as wide at base as the thorax, umbone feeble, sides subparallel, at apical third gradually narrowed to tip and acutely serrate; disc moderately convex, with striæ of large subconfluent punctures, intervals 3—5 subcostiform; surface ornate with yellow as follows: a narrow marginal space from base to middle joining a short transverse triangular spot, a narrow short stripe on third interval at base, an irregular spot at middle, posteriorly two transverse bands interrupted at suture. Body beneath bronze green, very sparsely pubescent. Prosternum truncate, alæ attaining the angles of the thorax. Abdomen very sparsely punctulate, last ventral without subapical carina or groove. Tarsi longer than half the tibiæ. Length .36 inch; 9 mm.

These two species differ especially in the form of the sternum and vestiture of the abdomen.

One specimen given to Dr. Leconte by Dr. Sharp of Scotland, collected by Mr. Hardy in the same region with the preceding.

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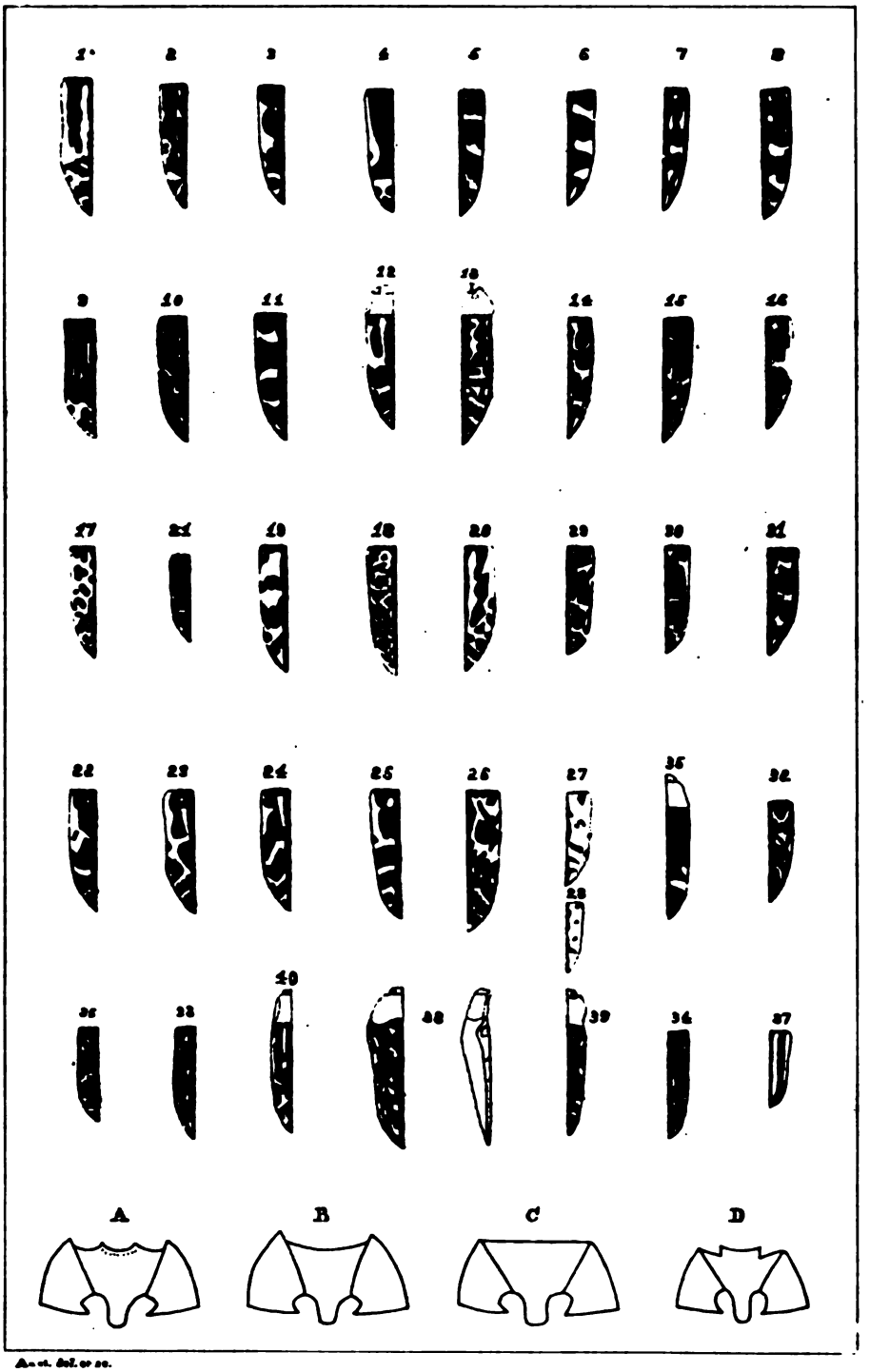


Auct. del. et sc.

EXPLANATION OF PLATE I.

Fig. 1.—*Acmæodera amplicollis*, Lec.
Fig. 2. " *opacula*, Lec.
Fig. 3. " *amabilis*, Horn.
Fig. 4. " *flavomarginata*, Gray.
Fig. 5. " *macra*, Horn.
Fig. 6. " *robusta*, Horn.
Fig. 7. " *pubiventris*, Horn.
Fig. 8. " *plagiaticauda*, Horn.
Fig. 9. " *miliaris*, Horn.
Fig. 10. " *sparsa*, Horn.
Fig. 11. " *tuta*, Horn.
Fig. 12. " *Hepburnii*, Lec.
Fig. 13. " *connexa*, Lec.
Fig. 14. " *acuta*, Lec.
Fig. 15. " *ornata*, Fab.
Fig. 16. " *flavosticta*, Horn.
Fig. 17. " *decipiens* Lec.
Fig. 18. " *tellaris*, Chev
Fig. 19. " *variegata*, Lec., from specimens from Utah. In the type the markings are much broken up as in some varieties of *pulchella*.
Fig. 20. " *mima*, Gory.
Fig. 21. " *Dohrni*, Horn.*
Fig. 22. " *pulchella*, Herbst, as it occurs in the Atlantic region.
Fig. 23. " " var., a Florida specimen. (Cab. Lec.)
Fig. 24. " " " Florida.
Fig. 25. " " " " Arizona, (my Cabinet.)
Fig. 26. " " " *mixta*, Lec., from the type.
Fig. 27, 28. " " " specimens from Utah.
Fig. 29. " *obtusa*, Horn.
Fig. 30. " *consors*, Horn.
Fig. 31. " *subbalteata*, Lec.
Fig. 32. " *texana*, Lec.
Fig. 33. " *versuta*, Horn.
Fig. 34. " *guttifera*, Lec.
Fig. 35. " *mariposa*, Horn.
Fig. 36. " *culta*, Weber.
Fig. 37. " *quadrivittata*, Horn.
Fig. 38. " *gibbula*, Lec.
Fig. 39. " *comata*, Lec.
Fig. 40. " *alacris*, Horn.

A. Diagram of the prothorax beneath of the Acmæoderæ sinuatæ.
B. " " " " " Acmæoderæ emarginatæ.
C. " " " " " Acmæoderæ truncatæ.
D. " " " " " Acmæoderæ lobatæ.

NOTE.—The figures of the elytra are of double the size of nature, 31—37 inclusive are three times enlarged.

* There should be an additional spot on this elytron between the posterior one and the apex.

Descriptions of the larvæ of the North American genera of CICINDELIDÆ, also of DICÆLUS with a note on RHYNCHOPHORUS.

BY GEORGE H. HORN, M. D.

Through the exertions of Mr. E. W. Guild of Manhattan, Kansas, the larva of *Amblychila* has at last been made known to the scientific world. Hearing that I was about to publish a description, Dr. Hagen of the Museum of Comparative Zoology at Cambridge, placed at my disposal the larvæ of the other genera of Cicindelidæ.

The accompanying plate (II) will enable the forms of these larvæ as well as their different members to be compared so that the resemblances and differences will be at once apparent. I have thought it advisable to give lateral instead of the dorsal views usually given because the larvæ are naturally in the position in which I have represented them, and it always seemed to me very unnatural to represent a *Cicindela* larva as if walking when in fact it is almost impossible for them to do so at all. The larvæ of Cicindelidæ live in holes in the ground excavated nearly vertically and when on the watch for prey the thorax and head are on the level of the top of the hole, the mandibles widely separated. In this position they remain until a small insect is captured when they retire and leisurely devour it, the debris is always pushed out and thrown some distance by a quick motion of the head and thorax. The larva is enabled to maintain this position at the mouth of the burrow by means of the hooks on the back of the fifth abdominal segment and by the anal segment itself. The natural position of each larva in its burrow is that represented on the plate, and it is absolutely impossible for these larvæ to assume the form in which they are usually represented.

In all the larvæ of Cicindelidæ the spiracles have a precisely similar arrangement. *Dicælus* has the anterior spiracle in the mesothorax. Attention should be directed to the more accurate description of the position of these organs as they are usually either entirely passed by or spoken of as "spiracles normal."

The larvæ of Carabidæ as far as known are active and cursorial, seeking their prey, while the larvæ of Cicindelidæ are solitary, sedentary and lie in wait for prey, never changing their place.

Amblychila cylindriformis, Say.

COLOR yellowish white, head and prothoracic scute castaneous.

FORM cylindrical, slightly flattened, head and prothorax bent at right angle to the body, tip of abdomen beyond the larger segment (fifth abdominal), gradually arcuate. Viewed on the dorsal aspect the body is gradually but slightly broader from the metothoracic segment to the fifth ventral, then gradually smaller to the tip which is obtuse. Viewed laterally the body is nearly of equal thickness excepting the gibbosity of the fifth abdominal segment. Length in normal position about 1.25 long, 3.2 mm. or when extended .5 inch, 12.5 mm. longer; thickness .24—.30 inch; 6—7.5 mm. The larva before me is probably not fully grown. Plate II, fig. 1, 1 a to 1 g.

HEAD corneous, above piceous slightly concave, half covered by the thorax, beneath very convex, resting posteriorly against the anterior coxæ. Upper surface of head broader than long, frontal margin trilobed, the lateral lobes broadly rounded and covering the base of the mandibles, the middle lobe prominent, obtuse, margin crenate, on each side at base a short obtuse process external to which is an obsolete suture. This lobe corresponds with the labrum and the suture may be faintly seen entirely surrounding it. Two ridges cross the head transversely, one between the base of the mandibles, the other forming the posterior margin of the head, both are feebly tuberculate, the tubercles bearing hairs of varying length. The under side of the head is cordiform in shape, convex, broader than long, with one median suture running from the anterior to the posterior margin, and a short oblique impression on each side in front, the two joining on the median line forming a V. The margin of the buccal opening is trilobed, the middle lobe or submentum triangularly emarginate. In the notch separating the submentum from the lateral lobes the maxillæ arise. The lateral lobes are longer than the median, their anterior edge has an elevated margin or bead. From the base of the mandibles a curved elevated line extends to the tip of the middle lobe.

EYES are situated, one on each side, near the posterior angles of the head on the upper surface and are round convex and simple; surrounding the eyes are numerous mammiliform tubercles, each bearing a hair.

ANTENNÆ are situated immediately behind the base of the mandibles, and are composed of four joints, the first joint stouter, the second nearly twice as long, the third, one-fifth the length of the second and the fourth very minute. The joints have moderately long hairs arising from the upper surface.

MANDIBLES are long, slender, acute, moderately curved, directed upwards at an angle of 45° to the plane of the head, with a triangular tooth slightly behind the middle. There is no trace of the basal molar tooth of the imago.

MAXILLÆ.—These are semi-corneous, moderately long and consist of a very small triangular basal piece, a moderately long, compressed-cylindric second joint (cardinal piece), which is fimbriate with long hairs on the inner face, a third piece more slender and compressed, somewhat shorter than the preceding with stiff bristles on the inner side, to this is attached a small terminal piece also with bristles. From the thickened base of the third piece arises a three jointed palpus, the joints of which are gradually shorter, the whole not extending beyond the tip of the maxilla.

MENTUM.—The mentum is corneous rather broadly obovate, the posterior edge with slightly elevated margin or bead. The palpi are stout, two jointed and arise from the face of the mentum slightly in front of middle.

PROTHORAX.—This segment is slightly broader than the head, of nearly semicircular form, anteriorly broadly emarginate, the angles nearly rectangular. Along the entire edge (except apical margin), there is a distinctly elevated margin or bead, less evident at the middle of the base. The median line is fine but distinctly impressed, and on each side a sinuous oblique impression.

MESOTHORAX.—This segment is much narrower than the preceding, trapezoidal, narrower posteriorly, the anterior angles broadly arcuate; the dorsal surface scarcely at all corneous. At the middle of the anterior margin the scutellum is distinctly indicated.

METATHORAX.—As broad at apex as the base of the preceding segment, gradually broader posteriorly, sides nearly straight, dorsal surface feebly corneous and with several vague impressions on each side, and a slightly reflexed margin each side of base.

ABDOMEN.—The first four segments are similar in structure. Form transverse, more than twice as wide as long, each gradually longer and wider than the preceding; on each side of middle a rounded plate of denser structure each with a few short bristles near its posterior margin. The ventral surface of each segment has but one transversely oval plate, the short bristles rather irregularly scattered. The fifth abdominal is broader than any which precede or follow, its dorsal aspect more gibbous, the semi-corneous plates are larger and each has two short corneous spurs of unequal length with dilated base around

which are numerous short and stout spinules. Anterior to the spines are numerous short bristly hairs and along the posterior margin of the segment two groups of short stout spinules similar to those around the base of the two spurs. The next three segments are gradually narrower and are relatively longer than the segments 1—4. The ninth segment is very short and much narrower than the eighth and has moderately long fimbriæ at the sides of tip. The anal segment is entirely corneous and rather densely fimbriate.

SPIRACLES.—There are nine pairs of spiracles. The anterior is situated under the margin of the prothorax behind the base of the anterior coxa, and is much larger than the others. The other spiracles are in the abdominal segments 1—8, and are situated in the side of the segment, in front of the middle and in the deep fold which is nearest the dorsal aspect of the segment.

LEGS.—The anterior and posterior pair are of equal length the middle somewhat shorter. The coxæ are conical and prominent and nearly equal to the rest of the leg. The second piece appears to be composed of a connate trochanter and femur, the separation indicated by an oblique impression and a feeble subangulation on the lower margin. The tibia is short, slightly conical and rather densely fimbriate and with a short tarsal piece from which arise two unequal claws.

For this larva science is indebted to the researches of Mr. E. W. Guild of Manhattan, Kansas. From his letters I transcribe the following notes:

"The burrows are found in all gradations of surface, from a perfect level to a nearly vertical face, but are in greatest numbers in slopes of about 30°. They are very noticeable from their large size and occurrence in clusters. Dry clayey banks are preferred and all the burrows I have examined enter at right angles to the surface of the soil and remain straight for three-fourths of their length then gradually curving. It is not unusual to see the larvæ after sundown or earlier if the day be cloudy. They are however very shy and I know of but one specimen being taken without considerable digging."

The burrows vary in depth from fourteen inches to three feet.

In this larva Dr. Leconte has recognized that mentioned by him (Ann Lyc. iv, 1845, p. 143), as the larva of *Pasimachus*. All references to the larva of the latter must now be expunged.

Omus Dejeani, Reiche.

COLOR yellowish white, head piceous, prothoracic scute pale castaneous.

FORM cylindrical, slightly flattened, head and thorax flexed at a

right angle to the body, last three abdominal segments arcuate forward. Head and prothorax twice as wide as mesothorax, from the latter to fifth ventral body gradually broader, then slightly narrowed to tip. Viewed laterally the body is nearly of equal thickness except at the gibbosity of the fifth abdominal. Length of larva in normal flexed position .80 inch; 20 mm; width about .16 inch; 4 mm. Evidently not fully developed. Plate II, fig. 2, 2 a to 2 e.

HEAD corneous, slightly concave, piceous with feeble cupreous lustre, general outline semicircular. Surface slightly longitudinally wrinkled in front. Frontal suture distinct, indicated by a paler transverse space. Clypeus trilobed, middle lobe moderately prominent, edge obtusely toothed, separated from the lateral lobes by a feeble acute notch exterior to which is a small tooth, lateral lobes much smaller than the middle, rounded. Vertex with distinct transverse carina posteriorly, two setæ at middle near the frontal suture, others at the sides, hind angles of head rounded. Head beneath convex, longitudinally impressed, broadly cordiform. Anterior margin trilobed, middle lobe truncate in front, lateral lobes more prominent than the middle, their anterior margin nearly transverse, forming a right angle with the inner margin, limited posteriorly by an elevated line extending from the base of the mandible to the inner lobe but not ascending along the outer side of the latter as in *Amblychila*.

EYES.—These are four in number on each side, two larger very convex, on the upper side, the posterior larger than the anterior; two smaller eyes on the side of the head, the anterior immediately beneath the superior eye, the other more posterior, somewhat larger, less convex and transparent. Around the eyes are small setigerous tubercles.

ANTENNÆ four jointed, situated on the front, behind and above the base of the mandibles and in front of the anterior eye; about half as long as the mandibles; joints 1—3 equal in length, the first two stouter, joint four half the length of the third and more slender. The first two joints have moderately long setæ, three at their distal end and two at middle, the third joint has very short setæ at tip, the fourth two moderately long slender setæ at tip.

MANDIBLES falciform, acute at tip, when closed applied against the frontal margin, an acute tooth on the inner margin slightly behind the middle.

MAXILLÆ semi-corneous, elongate, arising in the notch on each

side of the base of the mentum, similar in form to *Amblychila*, but with the terminal piece of the inner lobe relatively longer and the palpi with joints one and three equal in length, the second joint shorter.

MENTUM consists of a small triangular basal piece from which arise two coriaceous processes or basal supports of the palpi which are two jointed, relatively longer than in *Amblychila*, first joint stout armed with strong spines at tip, second joint more slender and slightly longer.

PROTHORAX semi-corneous, nearly exactly semicircular, apex feebly bisinuate, angles acute, disc feebly convex, margins narrowly reflexed, surface moderately shining, median line finely impressed, a transverse, slightly oblique impression in front of middle and with setæ along the apical margin, two at middle of disc, and feebly fimbriate along the margins.

MESOTHORAX half as wide as prothorax, feebly semi-corneous, one-half wider than long, sides parallel and straight, apex very suddenly narrowed.

METATHORAX very little wider than the mesothorax, sides obtusely angulate.

ABDOMEN.—Segments 1—4 gradually longer, otherwise similar in form, each with two semi-corneous plates on the dorsal face, and four on the ventral aspect feebly marked; sides of segments with two feebly semi-corneous plates in the connecting membrane which is deeply wrinkled forming vaguely two channels which extend from the metathorax to the tip of the abdomen. Fifth ventral more gibbous posteriorly and longer than the preceding segments, and with the usual plates and with two hooks on each side directed anteriorly, the outer hook longer, both stout at base and suddenly more slender at tip; posteriorly to the hooks are numerous fine spinules. The next three segments are gradually narrower. The ninth segment is more decidedly corneous. The anal segment is subconical, apical margin crenulate, anal opening ventral.

SPIRACLES are as in *Amblychila*.

LEGS are as in *Amblychila*.

The general aspect of this larva is intermediate between that of *Cicindela* and *Amblychila* the more striking points of difference will be indicated hereafter in a tabular form.

For the privilege of studying this larva I am indebted to Dr. H. Hagen of the Museum of Comparative Zoology at Cambridge.

Tetracha carolina, Linn.

COLOR yellowish white, head and thorax corneous with metallic surface, the margin of the latter testaceous.

FORM rather slender, cylindrical, slightly flattened, head and thorax at right angles to the body, last four segments of abdomen gradually arcuate forward. Length .68 inch; 17 mm. Plate II, fig. 3, 3 a to 3 e.

HEAD corneous, with æneous surface lustre, general form triangular with rounded angles. Above slightly concave, a strongly elevated transverse ridge posteriorly. Frontal margin with prominent median lobe, lateral lobes feebly arcuate and with a small tooth near the middle lobe; sides in front of eyes rather deeply sinuate, behind the eyes very suddenly narrowed. Head beneath broadly cordiform, very convex, sides subparallel for a short distance at middle, median line (especially in front), distinctly impressed, posteriorly distinctly notched. Apical margin trilobed, median lobe more prominent, with convergent sides and oval at tip, lateral lobes triangular, limited behind by an elevated line.

EYES.—There are two pairs of eyes on each side of the head. The superior eyes are large and prominent and equal in size, the one near the posterior angle of the head, the other a short distance in front. The smaller eyes are situated as follows: one moderately convex on the declivity in front of and beneath the upper front eye, the second is less convex is on the under side of the head immediately beneath the front large eye. These eyes are so arranged as to admit of a complete circle of vision. In the natural position of the head the posterior eyes look directly backwards, the front eyes directly upwards, the smaller front eye has vision to the front while the other small eye has a lateral scope.

ANTENNÆ.—These are situated at the side of the head immediately behind the base of the mandibles, four jointed, first joint stout, setigerous in front, second joint as long as the next two together, flattened and setigerous in front, third and fourth joints much more slender than the others, the terminal shorter than the third.

MANDIBLES slender, falciform, acute, more prominent than the margin of the front, armed with an acute tooth near the base.

MAXILLÆ stout, with the usual small triangular basal piece, second joint (cardinal piece), attaining the margin of the head, with two small tubercles bearing short spines on the anterior margin near the base, third piece (maxilla proper), stout with a more slender piece

rather more than half its length attached to the tip and semi-anchylosed, inner margin near the tip trituberculate and with short spines. Palpi three jointed, first joint as broad as long, second equally stout but longer, third joint more slender and nearly as long as the second.

MENTUM small, oval, coriaceous at tip, slightly concave. Palpi two jointed, joints rather slender and nearly equal, the terminal being slightly more slender and longer than the preceding.

PROTHORAX semicircular, feebly convex, margin translucent and slightly reflexed except at middle of base, median line rather deeply impressed and with an oblique sinuous impression on each side. Apex rather deeply bisinuous and near the angles with small setigerous tubercles.

MESOTHORAX half as wide as the prothorax, as wide as long, sides feebly arcuate and gradually but feebly narrowed to front. Surface with a single semi-corneous plate with distinctly impressed median line.

METATHORAX as wide as the mesothorax but shorter.

ABDOMEN.—Segments 1—4 equal in width, but gradually longer, each with two feebly semi-corneous plates. Fifth segment slightly broader than the others, gibbous posteriorly, plates larger, on each side of middle two acute hooks directed anteriorly the inner smaller, posteriorly a row of small setigerous tubercles. Segments 6—9 gradually shorter and narrower, anal segment more corneous, truncate at tip, anal opening terminal.

SPIRACLES as in *Amblychila*.

LEGS not notably different from *Amblychila* but with rather longer terminal claws.

Specimens of this larvæ were kindly placed at my disposal by the Museum of Comparative Zoology at Cambridge.

Cicindela repanda, Dej.

COLOR yellowish white, head piceous, thorax slightly bronzed.

FORM as in *Tetracha*. Length .66 inch; 16.5 mm. Plate II, fig. 4, 4 a to 4 d.

HEAD triangular, hind angles obtuse, corneous, concave above, a strongly elevated transverse ridge posteriorly and a feeble longitudinal impression on each side. Frontal margin with prominent middle lobe with sides slightly convergent, on each side a very feeble tooth at base, lateral lobes feebly prominent limited within by a moderate tooth. Head at sides moderately deeply sinuate, hind angles obtusely rounded.

suddenly narrowed behind the posterior eyes. Head beneath very convex, twice as wide as long, form irregularly hexagonal, posteriorly emarginate at middle, median line with a moderately deep depression at middle. Anterior margin trilobed and formed as in *Tetracha*.

EYES as in *Tetracha* although the lower eye of the smaller pair is very indistinct and may escape observation.

ANTENNÆ arising above and behind the base of the mandibles, four jointed, first joint stout, second longer and equal to the next two together, joints 3—4 more slender the terminal shorter. All the joints have moderately long whitish hairs.

MANDIBLES as in *Tetracha*.

MAXILLÆ with the small triangular basal piece, second joint (cardinal piece), moderately stout attaining the sides of the head and with a few setæ in front, third piece with the inner lobe tridentate near the tip and a moderately long more slender terminal articulation. Palpi shorter than the inner lobe, three jointed, joints gradually longer but more slender from first to third.

MENTUM oval in form, narrower at base, basal portion feebly corneous, apical portion membranous. Palpi two jointed, first joint stouter and longer than the second and with moderately long stiff hairs.

PROTHORAX more than twice as wide as long, crescentic, apical margin deeply bisinuate, disc feebly convex, median line finely impressed, a slight sinuous impression each side, posterior and lateral margins with moderately long whitish hairs.

MESOTHORAX less than half as wide as the prothorax, similar in form to that of *Tetracha*.

METATHORAX as wide as mesothorax and a little shorter.

ABDOMEN.—Segments 1—4 gradually longer; fifth segment longer gibbous posteriorly and emarginate and on each side of emargination a slender tubercle, hooks one on each side, long, slender, directed inwards and forwards; segments 6—9 gradually narrower, anal segment moderately long, truncate, anal opening terminal.

LEGS as in *Tetracha*.

SPIRACLES as in *Tetracha*.

The specimen before me was collected by Mr. H. G. Hubbard, near Detroit, and is now the property of the Museum of Comparative Zoology at Cambridge.

The essential differences between the four larvæ just described are as follows:

AMBLYCHILA.—Eyes two. Antennæ with joint two nearly equal to all the others combined. Maxillary palpi with the first joint longest, third shortest.

OMUS.—Eyes eight, two pairs large, two small. Antennæ with the first three joints equal, fourth shorter. Maxillary palpi with joints one and three equal, second shorter.

TETRACHA.—Eyes as in *Omus*. Antennæ with second joint longer than the first and equal to the two following together. Maxillary palpi with the second and third joints nearly equal, each slightly longer than the first.

CICINDELA.—Eyes as in *Omus*. Antennæ of *Tetracha*. Maxillary palpi with joints gradually longer and more slender from the first to the third. Fifth abdominal segment with the gibbosity emarginate behind, each side with a long slender hook and a short acute tubercle the latter directed posteriorly.

In these genera the thorax becomes gradually broader and shorter from *Amblychila* to *Cicindela*. The mentum also varies in form but this member is difficult to describe as its anterior portion, and usually the sides are more or less membranous and the form assumed might be quite different to different observers.

Dicælus, sp.

I am unable to say positively to which species the larva described below belongs. I have before me three specimens one from Georgia and two from Texas. The latter were sent in a bottle with *D. splendidus* and *costatus* so that it may belong to either. Recently Mr. F. G. Schaupp of Brooklyn, has sent me a sketch of the larva of *D. dilatatus* (from which he succeeded in raising the imago), which agrees in every particular with the three larvæ before me. To Mr. Schaupp belongs the credit of having determined the larva as I was rather unwilling to believe my larvæ to be those of *Dicælus*, the small size of the head influencing me in the belief that they were rather *Chlænius*.

COLOR dark greenish blue semiopaque, head reddish yellow.

FORM fusiform depressed narrower in front. Plate II, fig. 5, 5 a to 5 e.

HEAD reddish yellow, corneous, not deeply inserted in the thorax, above slightly concave, beneath slightly flattened, slightly narrowed behind the insertion of antennæ to base. Head above with anterior margin emarginate at middle, on each side lobed over the mandibles posterior to which is a slight emargination from which the antennæ

arise. Within each lobe is a slight arcuate impression while another feebler impression extends from the base of the antennæ toward the middle of the base. Head beneath with a long but feeble triangular impression broader in front. Anterior margin with a median emargination for the mentum, on each side a deeper notch for the maxillæ limited externally by a moderate lobe which covers the base of the mandible.

EYES.—These consist of six ocelli situated around a brownish spot immediately behind the insertion of the antennæ.

ANTENNÆ are situated immediately behind the base of the mandibles, about one-third the length of the body, four jointed. First joint somewhat stouter than the others, nearly half the length of the head, glabrous, second joint more than twice the length of first also glabrous, third slightly longer than second and fourth a little longer than the third and more slender, these two joints are pubescent and opaque.

MANDIBLES moderately long, arcuate and with a strong acute tooth at basal third.

MAXILLÆ consist of a stout, cylindrical basal piece supporting at its extremity two appendices an inner and an outer, the former two jointed the first joint longer and stouter than the second which is rather slender; the outer appendix is three jointed, twice as long as the inner, the basal joint short and stout, the second more slender and twice as long, the third more slender and half the length of the preceding.

MENTUM broader than long, trapezoidal, narrower posteriorly, obliquely truncate at each distal angle and bearing a two jointed palpus the joints of which are short stout and nearly equal in length, the terminal oval at tip.

PROTHORAX sub-hexagonal, the angulation of the sides behind the middle, surface greenish blue, sub-opaque, semicorneous, a distinct median fine line and on each side a feeble oblique impression.

MESO- and METATHORAX similar to the prothorax but shorter and broader.

ABDOMEN.—The first two segments are shorter than the others and equal, segments 3—8 sub-equal and longer than the first two. The surface is covered with a transverse semi-corneous scute, similar to the thoracic pieces, the scutes being each gradually broader from 1—4, then gradually narrower from 5—8, each has a fine median line. The ninth segment is much narrower than the others and is pro-

longed into two slender, arcuate, corneous processes with their surface submuricate and with very short spinules. The connecting membrane between the dorsal and ventral segments is distinctly visible from above and bears a narrow corneous plate opposite each segment. The ventral aspect of each segment from 1—7 consists of seven semi-corneous plates arranged as follows: a transverse piece along the anterior margin of the segment, behind which are four smaller subquadrangular pieces and on each side toward the margin of the segment a narrow longitudinal piece. The marginal piece of the connecting membrane is also visible from beneath. In the eighth segment the pieces are all united in one excepting the two lateral. In the ninth segment all are united. The anus is prolonged into a corneous tube equal in length to any of the preceding segments.

Spiracles.—There are nine pairs of spiracles. The anterior is the largest and is situated under the anterior angle of the *mesothoracic* segment. The other spiracles are situated in the dorsal portion of the connecting membrane near the anterior angles of segments 1—7 respectively.

Legs are gradually longer from the first to the third pair, the coxæ are prominent and conical, the femora longer than the coxæ, gradually broader toward the tip and with an oblique impression anterior to the middle. The tibial piece is a little longer than half the femur, slightly clavate. The tarsal piece slender, as long as the tibia and furnished with two small equal claws.

From the letter of Mr. Schaupp I learn that the larva when full grown transforms itself in a very short time into the pupa, occupying probably but little more than an hour's time. It remains in pupa seven days and requires three days more to become of full color. During the change from larva to pupa the form expands considerably so that it would not be supposed that so large an insect had been produced from so small a larva.

Rhynchophorus cruentatus, Hbst.

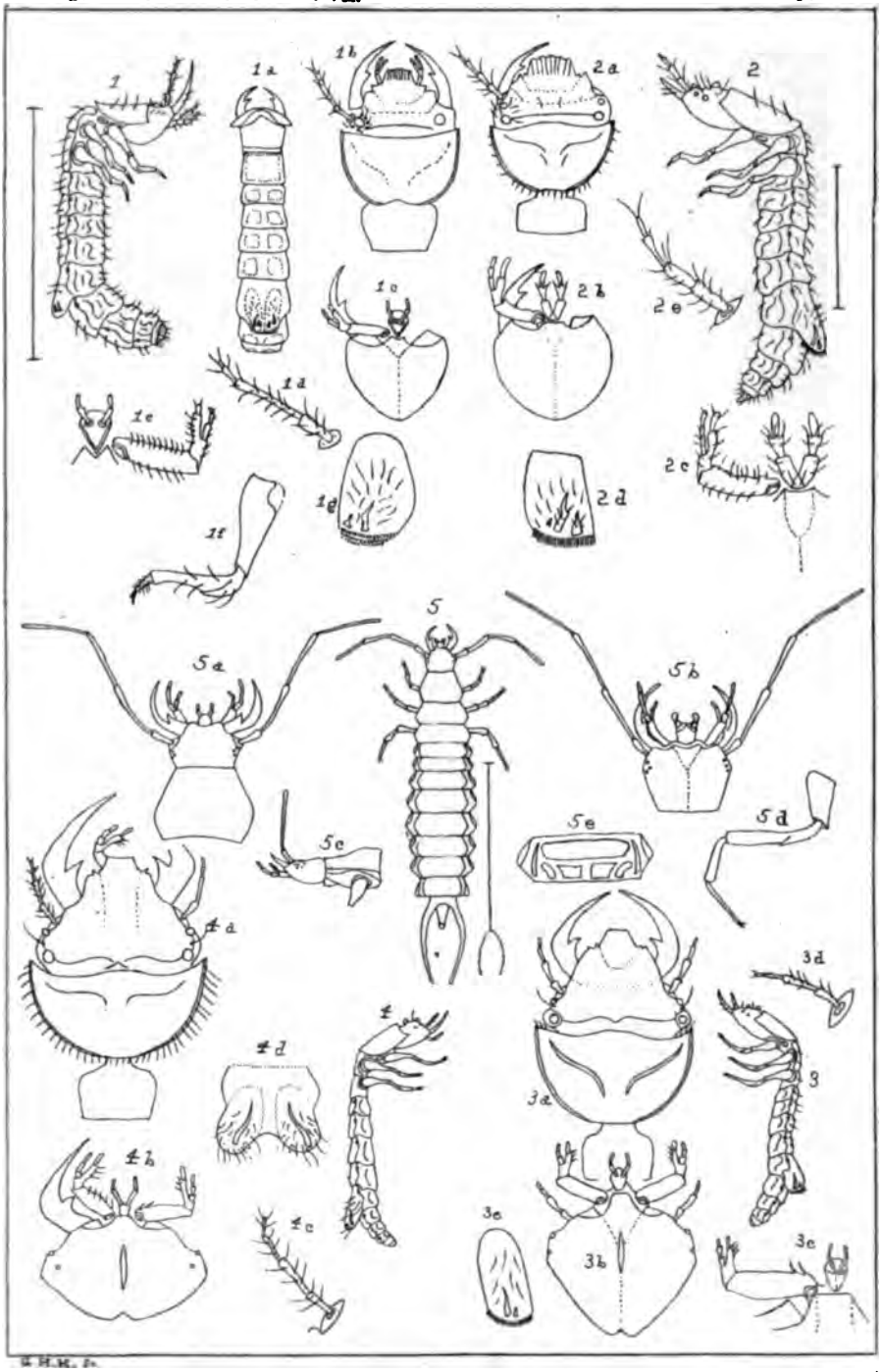
Mention is made of this species to correct an error which has crept into all mention of the larva.

There is but *one pair* of spiracles. These belong to the prothoracic segment and are situated at the side immediately beneath the margin of the plate forming the large dorsal scute. Chapuis and Candeze speak of nine pairs of spiracles but a carefully prepared skin shows the prothoracic pair only.

The credit of this discovery is due to Dr. Leconte.

EXPLANATION OF PLATE II.

Fig. 1.—*Amblychila cylindriformis*, Say, lateral view of larva.
Fig. 1, a.—Dorsal aspect.
Fig. 1, b.—Head, pro- and mesothorax, much enlarged.
Fig. 1, c.—Head, under side.
Fig. 1, d.—Antenna.
Fig. 1, e.—Mentum and maxilla.
Fig. 1, f.—Leg, front view.
Fig. 1, g.—Hook bearing plate of fifth abdominal segment.
Fig. 2.—*Omus Dejeani*, Reiche, lateral view of larva.
Fig. 2, a.—Head, pro- and mesothorax.
Fig. 2, b.—Head, under side.
Fig. 2, c.—Mentum and maxilla.
Fig. 2, d.—Hook bearing plate.
Fig. 2, e.—Antenna.
Fig. 3.—*Tetracha carolina*, Linn., lateral view; nearly twice natural size.
Fig. 3, a.—Head, pro- and mesothorax.
Fig. 3, b.—Head, under side.
Fig. 3, c.—Mentum and maxilla.
Fig. 3, d.—Antenna.
Fig. 3, e.—Hook bearing plate.
Fig. 4.—*Cicindela repanda*, Dej., nearly twice natural size.
Fig. 4, a.—Head, pro- and mesothorax.
Fig. 4, b.—Head, under side.
Fig. 4, c.—Antenna.
Fig. 4, d.—Dorsal view of fifth abdominal segment.
Fig. 5.—*Dicælus* (*costatus? purpuratus?*), dorsal view.
Fig. 5, a.—Head and prothorax above.
Fig. 5, b.—Head beneath.
Fig. 5, c.—Head and prothorax, side view.
Fig. 5, d.—Leg.
Fig. 5, e.—Ventral aspect of an abdominal segment, showing the arrangement of the plates.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Notes on some genera of CERAMBYCIDÆ of the United States.

BY GEORGE H. HORN, M. D.

The following notes have been prepared to assist those students in the determination of their species who have not access to large collections for comparison.

A number of the more difficult and large genera have already been tabulated by Dr. Leconte. In those here selected although the species are not numerous in any one there has been almost as much difficulty in determining the species as in Leptura, from the fact that the descriptions are scattered and too many species have been described from the insufficient material in cabinets at the time.

The number of new species described is necessarily very small from the fact that the field has but recently been so thoroughly gone over by Dr. Leconte.

In the preparation of the following remarks I have had the same types before me that were used by Haldeman and Leconte while my own cabinet has served to increase the number of specimens and enable specific limits to be better defined.

BATYLE Thoms.

Having lately had occasion to examine a large number of specimens of our smaller red species I became convinced that they were all variations of one form. It is proposed to unite them under Say's name.

B. suturalis Say. (*Callidium*).

The form described is that most commonly found in the Western States and Texas.

"Rufosanguineous, hairy; antennæ, suture, postpectus and feet black." (Elytra with coarse, distant punctures.)

The extent of the sutural black mark varies greatly, sometimes forming a narrow line or again, narrow at base and gradually becoming wider and even covering the apical third of the elytra. (*Pearsalli*, Bld.)

I have lately received from Mr. H. K. Morrison a specimen collected in the southwestern part of Colorado, in which the thorax is entirely black, so that only the abdomen and elytra are red and the suture in the latter is narrowly black.

The legs may be entirely red or even entirely black with all variations between.

The synonymy therefore is:

B. suturalis (Say).

miniatus (Germ.), *rutilans* (Lec.), *ruber* (Lec.), *Pearsalli* (Bld.)

B. ignicollis (Say); *sanguinicollis*, Germ.; *coccineicollis*, Hald.

This is, of course, a very distinct species, its characters in brief are: Black, sparsely pubescent; thorax red, elytra densely punctured.

POGONOCHERUS Serv.

A study of the typical specimens in the cabinet of Dr. Leconte leads me to the following results, with which I think he fully agrees.

P. sordidus Lec., has already been removed to the genus *Estola* Fairm., (see Trans. Am. Ent. Soc. 1875, p. 150).

Elytra truncate at tip and more or less dentate..... .....1.
Elytra rounded at tip.....2.
1.—Legs and sides of elytra with long flying hairs; elytra with moderately large umbone at middle of base.....**crinitus** Lec.
Legs and elytra without flying hairs.
Elytra with lateral costæ well marked and with a row of five or six tufts of erect black setæ.....**penicillatus** Lec.
Elytra without lateral costæ and tufts.....**mixtus** Hald.
2.—Elytra with moderately long hairs on the upper surface, and punctured very sparsely at basal half only.....**oregonus** Lec.

P. crinitus Lec., may not belong to the genus, its appearance is certainly unlike the other species, at first glance it strikingly resembles *Acanthoderes decipiens* excepting the elytral umbone.

P. penicillatus Lec., is very distinct by the lateral ridges and tufts of erect setæ.

P. mixtus Hald. To this I have added as synonyms *simplex* and *parvulus* Lec. The former does not differ at all, the second is merely a very small form. I find among the specimens some difference in the tips of the elytra which is merely individual, consisting in the greater or less distinctness of the tooth limiting the emargination of the tip externally. In some specimens a tooth is well marked and may even be called a spine; from this all degrees of variation are seen until the angle is completely rounded.

P. oregonus Lec., is very distinct by the rounded tips of the elytra and the rather long black hairs of the upper surface, and moderately long pale hairs on the legs and sides of the elytra. These hairs are

short in *penicillatus* and *mixtus*. The elytral sculpture in the present species is also peculiar, the punctures are all in and anterior to the white band, while in all the other species the elytra are punctured from base to tip.

Here also is the proper occasion to call attention to a discrepancy existing between the descriptions of Leconte and Lacordaire.

The former says (Classification p. 330), middle coxæ open; on p. 340, middle coxæ angulate but not open; also middle tibiæ with an external sinus.

Lacordaire (Genèra ix, pp. 416 and 650), middle coxæ closed; on pp. 417 and 650, middle tibiæ without sinus. This latter error ? is noticed by Leconte. In all our species the middle coxal cavities are as open as in *Eupogonius* and the middle tibiæ are in no way different from those of species pronounced *Hoplosia* and *Estola* but sufficiently different from *Eupogonius*.

ESTOLA Fairm.

E. ? sordida (*Pogonocherus ?*) Lec., New Species, p. 237.

The middle tibiæ have a distinct sinus on the outer side. The eyes are very coarsely granulated and the lower lobe broader than long, and the emargination is so deep that the isthmus between the two lobes is not wider than one or two facets.

The determination of this species as *Estola* is due to the suggestion of Mr. H. W. Bates, but I have considerable doubt of its correctness from the following characters: Scape of antennæ rather stout, eyes very coarsely granulated, the lower lobe broader than long, mesosternum declivous.

Those of *Estola* are: Scape of antennæ obconical, eyes subfinely granulated, the lower lobe elongated, mesosternum truncate in front, horizontal posteriorly, (Lacordaire).

These characters seem to require a provisional modification of the table of the *Pogonocherini* (Classification p. 340), as follows:

Middle tibiæ with an external sinus; thighs clavate; vertex concave, antennal tubercles prominent.
  Eyes moderately granulated. Scape of antennæ equally punctured.
    Lower lobe of eyes elongate.....HOPLOSIÆ.
    Lower lobe of eyes as wide as long.....POGONOCHERI.
  Eyes very coarsely granulated. Scape with large punctures intermixed.
    Lower lobe of eyes broader than long.....? ESTOLÆ.
Middle tibiæ without external sinus; thighs not clavate; vertex flat or convex, antennal tubercles not prominent.
  Eyes coarsely granulated; lower lobe as broad as long. Scape of antennæ equally punctured.....EUPOGONII.

MECAS Lec.

Our species are few in number and may be known by the following characters:

Body above concolorous.
- Legs black. Thorax usually with two feeble callosities. Body above uniformly clothed with cinereous pubescence.....**inornata.**
- Legs black. Thorax without callosities. Body above sparsely clothed with cinereous pubescence, thorax at sides and middle, elytra at suture and sides more densely clothed with yellowish white pubescence.....**marginella.**
- Legs or at least the femora red.
  - Thorax with four or five callosities. Surface sparsely cinereo-pubescent, suture and margin more densely.....**pergrata.**
  - Thorax without callosities. Surface very sparsely pubescent. Femora red, tibiæ usually dark.....**femoralis.**

Body above bicolored. Head and thorax reddish yellow.
- Elytra very sparsely cinereo-pubescent, suture more distinctly...**ruficollis.**

M. inornata (Say); *saturnina* Lec.

The form of the thorax varies considerably in this species, and may be almost truly cylindrical or arcuate at the sides; the width often equals the length, many times exceeding it. The callosities of the thorax which are feeble at best may be wanting.

Occurs from Dakota to Texas.

M. marginella Lec.

This species shows no variation except in size in the dozen or more specimens I have seen.

Occurs in Texas and Illinois.

M. pergrata (Say); *gentilis* Lec.

There are always four sometimes five callosities on the thorax. The upper surface varies in color from piceous to rufous and is sparsely clothed with cinereous hair. A narrow sutural and marginal line is more densely pubescent. The legs are rufous, the tibiæ at tips sometimes darker.

Occurs in the same regions with *inornata*.

M. femoralis (Hald.)

This is the smallest species. I have seen but four specimens not varying from the characters in the table.

Occurs in Georgia.

M. ruficollis n. sp.—Piceous, head, thorax and epipleuræ pale rufous, elytra black. Antennæ black. Head pale rufous, darker behind the eyes and at antennal tubercle, surface sparsely punctured and sparsely clothed with very fine pale pubescence. Thorax slightly wider than long, sides slightly

arcuate, surface sparsely punctured and pubescent, the pubescence so arranged as to appear to form a denser space on each side of the middle and at the sides. Elytra black, epipleurae pale, very sparsely cinereo-pubescent, surface sparsely and irregularly punctured, punctures finer toward the tip. Tip feebly emarginate at the sutural angle ♂ or obliquely truncate ♀. Length .50 inch; 12.5 mm.

I have seen four specimens from Texas and others from Mexico which vary among themselves in the color of the legs in some black, others piceous and two entirely rufous.

The sexual characters of MECAS are similar to OBEREA, the last ventral of the male is triangularly concave and the pygidium of the female rather protuberant.

OBEREA Muls.

All our species have the middle tibiae sinuate on the outer edge. The males have the last ventral segment concave and broadly emarginate at tip. There is also an additional dorsal segment. The females have the last ventral longitudinally impressed and feebly emarginate; the pygidium is convex, sometimes protuberant in an obtusely conical manner.

The species from their variability of color are difficult to define, the following table will however assist in their determination and although founded on color characters it attains the object in view as nearly as can be done.

Body beneath and legs, black.
- Thorax entirely black ..... **oculaticollis** Say.
- Thorax in great part yellow ..... **bimaculata** Oliv.

Body beneath and legs variable, never both at the same time black.
- Thorax with four distinct callosities, pygidium of female strongly protuberant ..... **quadricallosa** Lec. / **Schaumii** Lec.
- Thorax with two or no callosities. Pygidium ♀ feebly protuberant.
  - Body beneath and above entirely black.
    - Form moderately robust, middle and posterior legs black, anterior femora at apex and tibiae yellow. Thorax without callosities... **tibialis** Hald.
    - Form very slender. Thorax with two callosities. Legs entirely yellow. **flavipes** Hald.
  - Body beneath and above yellow or bicolored.
    - Thorax with callosities.
      - Elytra unicolored.
        - Elytra slightly sinuate at tip, epipleurae black; abdomen entirely rufous ..... **ocellata** Hald.
        - Elytra emarginate at tip and sub-bidentate, epipleurae pale at base; abdomen tipped with black ..... **texana** n. sp.
      - Elytra yellow with black stripes ..... **tripunctata** Swed.
    - Thorax without callosities ..... **ruficollis** Fab. / **gracilis** Fab.

O. oculaticollis Say.—A slender species entirely black, clothed with cinereous pubescence. Thorax with two callosities. Elytra obliquely truncate at tip.

Colorado and Northern Texas, rare.

O. bimaculata Oliv.—Slender, black, thorax and often the cervix yellow, the former usually with two callosities.

Several varieties occur.

var. **tripunctata** ‖ Fab.—Thorax with two discal and an ante-scutellar black spot.

var. **basalis** Lec.—Thorax with two discal spots and entire basal margin black. *perspicillata* Hald., is merely a smaller form.

var. ———.—Thorax, often the cervix, yellow without spots.

Our most abundant species. Occurs everywhere east of the Rocky Mountains.

O. quadricallosa Lec.—A large species with four distinct callosities on the thorax. The elytra are black, with cinereous pubescence, tips subtruncate, the epipleuræ always pale at base. The abdomen varies in color, rarely entirely rufous, usually with the last two or three segments rufous.

Californ̂ia and Nevada.

O. Schaumii Lec.—Flavo-testaceous. Occiput usually fuscous. Elytra variable in color, tips rounded or feebly subtruncate. The legs may be entirely yellow, or the tibiæ and tarsi fuscous.

var. **Schaumii** Lec.—Elytra brownish, epipleuræ and a short lateral vitta testaceous.

var. ———.—Elytra in great part yellowish, an elongated triangular fuscous scutellar spot, and a narrow vitta from tip toward base.

var. ———.—Elytra black, epipleuræ pale.

var. ———.—As in the preceding with the disc of the thorax entirely black. (May this be *Saperda marginata*, Fab. ?).

The first two varieties occur in the Gulf States, the last two in Illinois and Missouri.

O. tibialis Hald.—Black above and beneath, sparsely cinereo-pubescent, anterior tibiæ and femora at tips rufous. Thorax densely and rather coarsely punctured and without callosities.

I have seen but one specimen. Pennsylvania.

O. flavipes Hald.—Linear, black above and beneath, legs yellow.

Middle States and Illinois, rather rare.

O. ocellata Hald.—Moderately robust. Beneath entirely red. Thorax with two callosities. Elytra black, cinereo-pubescent, epipleuræ black. Legs usually pale, tibiæ and tarsi fuscous.

var. **ocellata** Hald.—Head and thorax rufous.

var. **discoidea** ‡ Lec.—Occiput and disc of thorax black. Legs entirely fuscous.

var. ————.—Head entirely black. Thorax rufous. Legs rufous, tibiæ and tarsi fuscous.

The first *var.* occurs from the Middle States to Texas, the second in Florida, the third Texas.

The last variety approaches the next species but the elytra are merely truncate, the epipleuræ black and the abdomen entirely rufous.

O. texana n. sp.—Form slender, yellowish testaceous. Head, antennæ and elytra black, sparsely cinereo-pubescent. Thorax with two callosities and an ante-scutellar black spot. Elytra truncate and subbispinose at tip. Epipleuræ pale at base. Legs yellow, tips of tibiæ and tarsi fuscous. Abdomen yellow, last segment, sometimes the sides of the second and third fuscous. Length .54 inch; 13.5 mm.

This species resembles some of the varieties of the preceding, and even *bimaculata* but in the latter case the body beneath and legs are entirely black.

Occurs in Texas.

O. tripunctata Swed.—Elytra flavo-testaceous with a sutural and lateral fuscous stripe. Thorax with two callosities. Legs always pale. The body beneath may be entirely fuscous or pale yellowish with merely a lateral metasternal space and spots on the sides of the second and third ventral fuscous.

var. **myops** Hald.—Body beneath pale, fuscous spots on the sides of metasternum and second and third ventral segments. Head yellow. Elytra pale yellowish with a lateral stripe fuscous. Thorax with two discal spots only.

var. **mandarina** Fab.—Abdomen variable, sometimes entirely fuscous, elytra with sutural and lateral stripe fuscous. Antennæ usually annulated. Thorax with ante-scutellar spot.

var. ————.—As in the preceding, head fuscous, antennæ not annulated.

Occurs from the northeastern States to Colorado and Georgia.

O. gracilis Fab.—Pale yellowish testaceous. Antennæ fuscous. Thorax densely punctured, without callosities. Elytra with lateral stripe fuscous. Legs pale, tips of tibiæ and tarsi darker.

Occurs in Georgia.

O. ruficollis Fab.—Pale rufous. Antennæ and elytra nearly black, the latter cinereo-pubescent, epipleuræ pale at base. Thorax without callosities. Tibiæ and tarsi fuscous.

I have seen but one instance of variation. This has a very indistinct pale vitta extending from base to tip of elytra, at middle.

Occurs from Connecticut to Georgia.

It must not be supposed that every specimen is amenable to classification by the foregoing table and remarks. The species are

so variable, even with the suppressions I have made, as almost to resist generalization.

In order that the changes in synonymy may be more clearly defined the following bibliography is added.

O. oculaticollis Say, Journ. Acad. 1824, p. 406.
O. bimaculata Oliv. Ent. iv, 68, p. 21, pl. 4, fig. 43.
tripunctata ‖ Fab. Ent. Syst. i, 2, p. 310; Hald. Trans. Am. Philos. Soc. x, p. 57; Lec. Journ. Acad. 1852, p. 152.
affinis Harris, Ins. Mass. p. 91.
perspicillata Hald. loc. cit.
basalis Lec. loc. cit. p. 153.
O. quadricallosa Lec. Trans. Am. Ent. Soc. 1874, p. 68.
O. Schaumii Lec. Journ. Acad. 1852, p. 153.
O. tibialis Hald. loc. cit. p. 57.
femoralis Lec. (err. typ.) loc. cit. p. 153.
O. flavipes Hald. loc. cit. p. 57; Lec. loc. cit. p. 152.
O. ocellata Hald. loc. cit. p. 56; Lec. loc. cit. p. 152.
O. texana n. sp.
O. tripunctata Swederus, Vet. Ac. nya Handl. 1787, p. 197.
mandarina Fab. Syst. El. ii, p. 321; Lec. loc. cit. p. 152.
amabilis Hald. loc. cit. p. 157.
myops Hald. loc. cit. p. 57; Lec. loc. cit. p. 152.
O. gracilis Fab. Syst. El. ii, p. 324; Hald. loc. cit. p. 57; Lec. loc. cit. p. 152.
O. ruficollis Fab. Ent. Syst. i, 2, p. 311; Hald. loc. cit. p. 56; Lec. loc. cit. p. 152.
plumbea Oliv. Ent. iv, 68, p. 21, pl. 4, fig. 42.

TETRAOPES Dalm.

Collections from all parts of our territory show conclusively that the number of our species must be reduced.

They may be distinguished in the following manner:

Elytra with median and apical cordiform black space.
Disc of thorax black. Thoracic umbone suddenly elevated.
discoideus Lec.
Disc of thorax red. Umbone gradually convex.....**canteriator** Drap.
Elytra with black spots.
Antennæ black, not annulate.
Abdomen very sparsely, scarcely visibly punctulate. Mandible of ♂ with deep sinuation at base.....**tetraophthalmus** Forst.
Antennæ more or less distinctly annulate. Abdomen densely but very finely punctulate. Mandible of males with moderate sinuation.
Claws rather deeply bifid. Surface rather sparsely clothed with recumbent pubescence, and with semi-erect hairs visible on the disc.
Thoracic umbone suddenly elevated, distinctly limited at sides.
Surface of umbone opaque. Abdomen scarcely punctulate.
collaris n. sp.
Surface of umbone shining. Abdomen densely punctulate.
femoratus Lec.

Scape of antennæ black, femora red.....var. **femoratus.**
Scape reddish, femora dark.....var. **mancus.**
Scape red, femora red.....var. **basalis.**
Scape, femora and anterior tibiæ red.....var. **oregonensis.**
Thoracic umbone gradually convex. Antennæ feebly annulated.
Antennæ and legs dark.....**quinquemaculatus** Hald.
Scape and femora red.....var. **texana.**
Claws feebly cleft at tip. Surface more densely clothed with recumbent pubescence, erect hairs very short and visible only at the sides and tip.
Thoracic umbone gradually convex, lateral tubercle not very prominent.....**canescens** Lec.

T. discoideus Lec. and **canteriator** (Drap.)

These two species have black antennæ and legs, the former not annulate. The anterior cordiform spot may be reduced to a mere spot on each elytron.

The first occurs in New Mexico, the second in the Atlantic States.

T. tetraophthalmus (Forst.)

The antennæ and legs are always black. The elytral spots (four on each) constantly remain but vary in size.

Occurs from the Middle States to Kansas.

T. collaris n. sp.—Body black, head, thorax and elytra red. Antennæ annulate, scape brownish. Thorax with the usual four spots, sometimes the basal margin black, umbone suddenly elevated, surface opaque. Elytra subopaque with the usual four black spots. Legs black, anterior and middle femora brownish. Length .50 inch; 12.5 mm.

The mandibles of the males have a feeble sinuation on the upper edge at base. One specimen ♂ lacks the lateral spot.

Five specimens collected by Mr. Belt in New Mexico.

T. femoratus Lec.

Under this head I have added as varieties, the species already noted. The markings often exactly resemble *tetraophthalmus* and the antennæ sometimes lose their annulation, in which case the more distinct punctuation of the abdomen is the only means of distinguishing the two.

This species and its varieties are found over the entire region west of the Mississippi River to the Pacific coast, and varies in color of limbs and in the number and size of elytral spots in every conceivable manner. The form known as *oregonensis* has very small elytral spots.

T. quinquemaculatus Hald.

The thoracic umbone is merely slightly more convex than the rest

of the disc. The antennæ are very feebly annulated. In the typical form the legs and antennæ are black.

The form noted in the table as var. *texana*, is larger than the others and has the femora and scape red.

Occurs from Michigan to Texas.

T. canescens Lec. = *annulatus* Lec.

The surface is usually paler in color than the other species and rather densely clothed with fine cinereous pubescence, the erect hairs are very short and are visible only at the sides and near the tip. The thoracic umbone is abruptly elevated but less distinctly defined than in *femoratus*. In all the specimens I have seen the lateral elytral spot is absent.

The sinuation of the upper margin of the mandible near the base is sexual and is the only character by which the male may be determined.

Kansas, New Mexico and Texas.

TETROPS Kirby.

Three species occur in our fauna.

Elytra with greyish recumbent pubescence and erect pale hairs intermixed.
Legs black..... **canescens** Lec.
Elytra with black recumbent and erect hairs.
Legs black, thoracic umbone distinctly elevated..... **jucunda** Lec.
Legs red, umbone scarcely elevated..... **monostigma** Hald.

T. canescens Lec., occurs in Kansas; *jucunda* widely distributed but not common. Of *monostigma* I have seen but one specimen from the Middle States, which may be merely an accidental variation of *jucunda*.

AMPHIONYCHA Lec.

I have already shown the confusion existing regarding this generic name (Trans. Am. Ent. Soc. 1875, p. 150), and might add that the Catalogus, Gemm. and Harold, does not make matters any better.

Our two species are merely varieties of one and differ only in the thorax of *flammata* being narrowly yellow at the sides and the same color forming a very narrow margin at the sides of the elytra near the base while in *ardens* the thoracic yellow space is broad and the humeri and sides to middle of the elytra are also yellow. There is every degree of variation.

The synonymy therefore is:

A. flammata Newm. = *marginata* ‡ (Fab.) Hald. = *ardens* Lec.

Contributions to the COLEOPTEROLOGY of the United States, No. 2.

BY GEORGE H. HORN, M. D.

The following descriptions of new species are made from specimens in my cabinet, which have accumulated since the latest revisions of the genera to which they belong. The publication of isolated species is the most discouraging portion of scientific work as it often adds nothing to science but a new name. It is however far better to put a name before the scientific world backed by a description than to have cabinet names without any authority whatever, this therefore must be the apology for the present paper.

Two species belong to genera not before known in our fauna, *Anchonoderus* and *Cryptostoma*, represented heretofore by species occurring only in South America. The species of the former genus is a veritable member of our fauna, of this there can be no doubt, of the other however there may be a little doubt as will be explained further on.

ELAPHRUS Fab.

E. pallipes n. sp.—Form rather slender, surface dark bronze as in *ruscarius*. Head densely punctured, eyes large and prominent. Thorax narrower than the head, slightly longer than wide, base narrower than apex, sides moderately arcuate, posteriorly sinuate, hind angles rectangular; disc convex, with apical impression moderately deep, median impression moderate and with a short, smooth line more deeply impressed at its middle, within the hind angles a broad impression; surface densely punctured and with a vague impression on each side of middle; beneath sparsely but not deeply punctured. Elytra oboval truncate at base, widest behind the middle, sides slightly sinuate behind the humeri, disc densely and finely punctured with the usual three discal and a marginal series of ocellate foveæ and with polished, more elevated spaces between the foveæ of each series, those of the sutural row larger and the outer two quite small. Body beneath bronzed, shining, sparsely punctured at the sides. Legs testaceous with æneous surface lustre, tips of tibiæ and femora darker. Length .24 inch; 6 mm.

Male.—Anterior tarsi with three joints dilated.

This species takes its place with *riparius* and *ruscarius* from which it differs in its generally longer form, narrower and less arcuate thorax and its entirely pale legs. The sculpture of the under side of the thorax is somewhat more dense and less deeply impressed, and the intervals less shining than in *ruscarius;* and more sparse than in *riparius* and with intervals distinct.

Occurs in Oregon and British Columbia. For my specimens I am indebted to Mr. H. Ulke.

E. viridis n. sp.—Form moderately robust, color above brilliant green. Head densely punctured, brilliant green, with bronze spots, one clypeal, two frontal, one vertical and two occipital; eyes moderately prominent. Thorax slightly broader than the head, broader than long, base and apex equal, sides strongly arcuate in front, basal half suddenly sinuate, hind angles slightly divergent; apical transverse impression moderate, median line finely impressed, surface densely and finely punctured, brilliant green maculate with bronze in the following manner: an apical spot on each side, a small median basal spot, an inverted V-shaped mark, the angle being at the apical margin the ends at the hind angles. Elytra oval, broadest behind the middle, surface very densely and finely punctured without distinctly defined ocellate punctures, surface brilliant metallic green with a sutural bronze space and with three series of elevated highly polished spaces of moderate size and nearly equal, the sutural series of three, the median of four the outer of two. Body beneath green, less brilliant than above, side pieces of thorax rather sparsely punctured intervals smooth. Legs pale with æneous surface lustre, tips of tibiæ and femora darker. Length .22 inch; 5.5 mm.

This species is peculiar in the form of the thorax, the color of the surface and the absence of ocellate foveæ. Its position is probably with our smaller species in which the male has three dilated anterior basal joints.

One specimen ♀ from Mr. A. S. Fuller, collected in California.

DYSCHIRIUS Bon.

D. lævifasciatus n. sp.—Aeneous, shining. Clypeus deeply emarginate, on each side dentate, sides of front lobed, lobes carinate, front transversely broadly impressed. Thorax globose, median line deeply impressed posteriorly. Elytra very deeply striate, striæ at base obsolete, at apex deeply impressed, obsoletely punctured and broadly interrupted by two arcuate transverse spaces through which the striæ are continued by very fine punctures, sutural and marginal striæ entire, basal stria obsolete; third interval with three distinct punctures. Legs and basal joint of antennæ pale rufous, hind tibiæ rather more arcuate than usual. Anterior tibiæ bidentate externally, the upper tooth feeble, terminal spur long and moderately arcuate. Length .12 inch; 3 mm.

The appearance of this species with the unusually deep striæ twice broadly interrupted is very peculiar and seemed to me at first a deformity. Its characters, otherwise, define the position it should occupy in the series which is near *consobrinus* Lec. The transverse impression of the front although broad is feeble and the striæ at base are obliterated, at apex deeply impressed, and the basal stria entirely wanting; these characters place it with the species mentioned rather than with *æneolus*, etc.

I have seen three specimens exactly alike received from Oregon by Mr. H. Ulke, one of them being now in my cabinet through his kindness.

ANCHONODERUS Reiche.

A. quadrinotatus n. sp.—Piceous, sparsely pubescent, legs, palpi and antennæ at base testaceous, elytra each with two reddish spots, one subhumeral, the other subapical and larger. Head moderately shining, front slightly longitudinally impressed on each side, vertex and occiput sparsely punctured. Antennæ piceous at base, brownish externally. Thorax cordiform, not wider than the head, as wide as long, base narrower than apex, sides in front moderately arcuate, gradually narrowing to base and feebly sinuate in front of hind angles which are rectangular but not prominent, median line finely impressed, surface sparsely punctured, sparsely clothed with short, erect, yellowish pubescence. Elytra oval, sides feebly arcuate, surface striate, striæ serrately punctured, intervals slightly convex sparsely punctulate and pubescent, piceous and with two rufous spots, one near the humeri small, another near the tip, larger and round. Body beneath piceous sparsely pubescent. Prothoracic side pieces nearly smooth, abdomen moderately densely punctured. Length .28 inch; 7 mm.

Two specimens from Texas.

Anchonoderus differs from *Lachnophorus* in the form of the palpi which have the terminal joint feebly fusiform in the first and ovoid terminating in an acute point in the latter genus. The anterior tarsi of male have three joints feebly dilated.

COTALPA Burm.

C. flavida n. sp.—Body beneath and tarsi piceous black, upper surface legs and pygidium pale yellow. Clypeus transverse, slightly narrower in front, apex feebly arcuate, angles broadly rounded. Front and clypeus moderately densely but finely rugulose. Thorax very sparsely punctured on the disc, moderately densely and finely ruguloso-punctate at the sides. Elytra sculptured as in *lanigera*, distinctly subangulate at the sides, more strongly in the ♀ which has also a distinct tubercle at the angulation. Pygidium yellowish, finely scabrous, smoother in the male. Legs yellowish tarsi pitchy black, body beneath sparsely pubescent, less densely than in *lanigera*. Length .90—1.00 inch; 23—25 mm.

This species is closely allied to *lanigera*, which it resembles in form and color although without any of the metallic lustre of surface. It very distinctly differs in the thorax being rugulose at the sides, the clypeus more narrowed in front and the under side of body and tarsi pitchy black and the surface much less pubescent. The under surface is very much less distinctly punctured. The greatest describable difference is between the females. In the present species the elytra are very distinctly subangulate in front of middle and a well marked tubercle in the angulation. There is scarcely any trace of either angulation or tubercle in *lanigera*.

I have examined about twenty specimens of this species collected at St. George, Utah, by Dr. Edw. Palmer.

CRYPTOSTOMA Latr.

C. Dohrni n. sp.—Oblong, moderately elongate, subparallel, equally obtuse at each end, color pale sanguineous, sides of body and elytra black, the latter with a humeral spot and apex sanguineous, surface clothed with fine recumbent pubescence the color of the surface. Antennæ piceous, basal joint sanguineous. Head densely punctured, clypeus more sparsely. Thorax one-fourth wider than long, sides moderately arcuate and gradually narrowed at apical third, hind angles slightly prolonged posteriorly; disc convex, a slight depression within each hind angle, a median flattening near the base and a very feeble, short, oblique impression on each side of middle near the apex; surface sanguineous, densely punctured and pubescent. Elytra oblong, slightly broader behind the middle, striate, striæ punctured, intervals flat, convex at base, densely punctulate, color black, subopaque, humeri and apex sanguineous, surface moderately densely clothed with recumbent pubescence, black on the disc red on the humeral and apical spaces. Body beneath densely punctured and sparsely pubescent; abdomen more finely and densely punctured; color pale sanguineous metasternum and abdomen at the sides black. Length .60 inch; 15 mm.

I have seen but one female of this very beautiful Eucnemide which I owe to the great liberality of Dr. Dohrn of Stettin, by whom it was sent with the assurance that it came from San Diego, California, in a bottle of alcoholic specimens all the other specimens being truly native to that locality. The bottle came from Mr. Jas. Behrens.

This species differs notably in size and color from those described by Bonvouloir, all of which come from tropical South America.

Cryptostoma has no antennal grooves. Epistoma narrowed at base, rounded in front. Thorax with a single marginal line and the pleuræ triangular. The coxal plates are moderately dilated internally but not suddenly. The tarsi are slender and simple. The metasternal epimera are concealed.

The antennæ of the two sexes differ in form and length, those of the male being longer than half the body, the third joint with a hook-like process at its base, the outer joints moderately long. The female antennæ attain the hind angles of the thorax and are stouter but not dentate; third joint simple slightly obconical, fourth slightly longer than the second and very little shorter than the fifth; joints 5—8 subequal slightly wider to the tip; ninth distinctly longer than the eighth; tenth somewhat shorter; eleventh still shorter and truncate at tip.

In an arrangement of our genera *Cryptostoma* must be placed near *Schizophilus*.

TYPOCERUS Lec.

T. balteatus n. sp.—Head and thorax black. Thorax coarsely and densely punctured, disc very convex, sparsely pubescent, apex constricted, base deeply impressed, both with fine golden pubescence, sides feebly arcuate except in front. Elytra gradually attenuate to apex which is obliquely truncate, the angles not acute, sparsely punctured and pubescent, surface shining, bright yellow with three narrow black bands interrupted at the suture. Body beneath piceous, sparsely punctured and pubescent. Length .44 inch; 11 mm.

Male.—Antennæ as long as three-fourths of the body, black, externally subserrate, eleventh joint appendiculate, joints 6—11 with elongate flattened poriferous spaces occupying nearly the entire length of the joint, the last joint with a space on appendix also. Legs bright yellow, tarsi piceous, posterior tibiæ and tarsi tipped with piceous.

Female.—Antennæ not longer than half the body, external joints stouter, eleventh not appendiculate, joints 1—5 bright yellow, 6—11 black and with small poriferous spaces at the base of each joint, the eleventh with two without trace of appendicular joint. Legs and tarsi yellow.

This species may be known by the bright yellow elytra with the three narrow black bands and the surface very sparsely punctured. It should be placed near *brunnicornis* Lec.

Occurs in Colorado (Morrison), Arizona (Fuller).

NOSERUS Lec.

N. emarginatus n. sp.—Semicylindrical, moderately elongate, opaque, surface with the usual dark brown indument. Head deeply concave, the supra-antennal margin strongly elevated. Thorax oval, longer than wide, gradually arcuately narrowed to base, the latter broadly lobed at middle, anterior angles obtusely prolonged, disc elevated at middle and with two slightly elevated ridges which are approximated at middle, divergent slightly at either end, each terminating in front in a tubercle more prominent in front than the rest of the margin; on each side of these ridges a shorter sigmoid elevation. Elytra oblong, semicylindrical, base emarginate, humeri obtusely rounded, disc with two rows of small tubercles, velvety at their summits, the inner row longer terminating in a moderately prominent tubercle, near the tip rather suddenly declivous, tip slightly prolonged and emarginate at the suture. Body beneath brownish opaque. Second and third segments of abdomen concave at middle, fourth impressed posteriorly, fifth with a reniform impression. Legs sparsely granular and with short setæ. Antennæ perfoliate, the last joint (which is composed of the connate tenth and eleventh), truncate at tip and placed obliquely on the ninth. Length .62 inch; 16 mm.

The antennal groove which is very feebly defined in *N. plicatus* is even less distinct here. All the tubercles and ridges of the surface have short black setæ which might readily escape notice. The emargination of the tip of the elytra is unique among our Nosodermoids, there is however a species in Cuba similarly marked (*N. echinatum ?*).

One specimen collected near San Antonio, Texas, by Mr. H. A. Brous.

MICROSCHATIA Sol.

M. morata n. sp.—Oval, opaque. Head vaguely punctured, each puncture with a small pale scale. Thorax one-half wider than long, slightly broader at base than apex, sides feebly arcuate, margin not reflexed, disc regularly convex, not gibbous, moderately densely but rather vaguely punctured, each puncture with a small pale scale, and with small elevated smooth spaces irregularly placed near the middle of the disc. Elytra not wider at base than the thorax, one-fourth longer than wide, disc convex and with three feeble costæ on each at base which become resolved into feeble anastomosing reticulations. Body beneath coarsely but not densely punctured. Length .48 inch; 12 mm.

In this form as in *sulcipennis* the thorax is not gibbous and is entirely devoid of the basal impressions so well marked in the other two species. The three costæ are very short and extend about one-third from the base and become confused and form feebly elevated anastomosing reticulations. It resembles in form and size *Asida polita* less the thoracic margin of the latter.

One specimen from Grant Co., New Mexico, given me by Mr. Carl F. Gissler.

ASIDA Latr.

A. mancipata n. sp.—Form of *A. opaca*. Head and thorax opaque, elytra more shining. Head sparsely and rather finely punctured and with a few scales. Thorax broader than long, apex slightly narrower than base and emarginate, sides moderately arcuate, in front of angles sinuate, angles acute and moderately prominent, margin moderately reflexed, disc feebly convex coarsely and rather densely punctured and opaque. Elytra oval, more rapidly narrowed at apical third, slightly broader at base than the thorax, margin acute and slightly reflexed at the humeri which are moderately prominent, disc feebly convex and with three irregular, feebly elevated costæ united by intervening reticulations. Body beneath feebly shining, finely rugulose and subpunctate. Length .52—.64 inch; 13—16 mm.

This species has the form of *opaca* and an elytral sculpture resembling *sordida*. The male is more slender than the female and the disc of the elytra feebly convex, the female is stouter, the elytra more convex but depressed along the suture. Its position in the series is after *opaca*.

Two specimens, Grant Co., New Mexico, kindly given me by Mr. Carl F. Gissler.

A. acerba n. sp.—Form of *hirsuta*, brownish, subopaque, surface sparsely clothed with very short erect pubescence, yellowish on the head, brownish elsewhere. Head sparsely punctate. Thorax one-third broader than long, apex as wide as base and feebly emarginate, sides very regularly arcuate, margin feebly reflexed, hind angles obtusely rounded, base truncate, disc feebly convex, sparsely and very regularly punctured at middle, more densely at the sides. Elytra oblong oval, humeri broadly rounded, apex feebly attenuate, sides rounded without margin, disc regularly convex, subopaque, sparsely and

very finely punctate. Body beneath subopaque, sparsely and finely punctate. Anterior tibiæ denticulate on the outer margin. Length .48 inch; 12 mm.

This species by the form of the thorax and the rounded humeri is related to *hirsuta* and *hispidula* from both of which it differs in its anterior tibiæ being denticulate. *A. hirsuta* has a more convex and shining thorax, the margins broadly reflexed and the entire surface sparsely clothed with long yellow hair; *hispidula* has scarcely any reflexion of the margin but its hind angles are subacute.

One specimen from St. George, Utah, collected by Dr. Edw. Palmer.

HELOPS Fab.

H. viridimicans n. sp.—Piceous, surface brilliant metallic green. Species alate. Head sparsely punctate. Antennæ somewhat longer than the head and thorax, rather slender, outer joints broader, last joint oboval slightly longer than the preceding. Thorax nearly twice as wide as long, apex slightly narrower than the base and rather deeply emarginate, anterior angles obtuse, sides feebly arcuate, slightly sinuate in front of the hind angles which are rectangular, base feebly bisinuate; surface sparsely punctulate and with an arcuate impression in front of base; beneath, prosternum at middle densely punctured, at sides longitudinally strigose, inflexed portion of pronotum sparsely punctulate. Elytra oval, humeri distinct, surface striate, striæ finely punctured, intervals flat, finely punctulate. Body beneath bronzed, moderately punctulate. Length .32 inch; 8 mm.

This species belongs with the series allied to *micans*, from all of which it differs by more transverse thorax and the sculpture of the prosternum.

One specimen from Tampa, Florida, given me by Mr. F. G. Schaupp.

H. difficilis n. sp.—Moderately elongate black, semiopaque, body apterous. Head densely punctured. Antennæ longer than half the body, slender, last joint slightly longer than the preceding. Thorax slightly broader than long, base very little broader than apex, sides moderately arcuate, margin very feeble, base and apex truncate, hind angles subrectangular not prominent, disc convex, coarsely and densely punctured. Elytra elongate oval, convex, surface with faint traces of striæ and very densely punctured, punctures finer than those of the thorax. Body beneath densely punctured. Length .46 inch; 11.5 mm.

This species being apterous must be placed in the second group of the genus in accordance with the table published in the Trans. Am. Phil. Soc. 1870, p. 392, differing from all the species in that group by the surface sculpture which resembles that of *opacus*, some of the forms of which are winged while others are apterous. As compared with this latter species the present is more elongate, thorax more convex and less margined and with the hind angles not flattened and not distinctly rectangular.

Occurs in the mountainous regions of western Colorado.

MACROBASIS Lec.

M. linearis Lec., Journ. Acad. 1858, p. 23.

Male.—First joint of antennæ rather longer than the head, gradually broader to the tip and very feebly arcuate at base, second joint slightly longer than a fourth of the first and as long as the third and fourth joints together; joints 3—11 equal in length, gradually more slender to tip. Anterior tibiæ with a single terminal spur. First joint of anterior tarsus shorter and broader than the second, concave and smooth on its inner face.

The first two joints of the antennæ have a shallow but well defined broad groove, pubescent at bottom, along the anterior edge. This character does not appear in any other species.

Female.—First joint of antennæ shorter than half the head, second rather more than half the first and but little longer than the third; joints 3—11 equal in length, gradually more slender to tip. Anterior tibiæ with two terminal spurs; first joint of tarsus longer than the second and normal in form.

This species was originally described from a female in bad condition collected by Capt. Pope on the Llano Estacado, recently Mr. H. A. Brous has found several in the neighborhood of San Antonio, Texas, and from these the description above has been made.

The original description may be amended as follows:

Slender, piceous, moderately densely clothed with cinereous pubescence. Elytra pale luteous, a darker spot on each side of scutellum, another in front of humeri. Legs luteous, upper side of anterior femora, knees and tarsi darker. Length .44—.70 inch; 11—18 mm.

M. Gissleri n. sp.—Slender, black, sparsely clothed with fine, short cinereous pubescence, forming a denser line along the entire margin and suture. Head oval, moderately densely punctulate, a smooth medial line and space in front of each eye, thorax very little longer than wide, sides parallel, suddenly narrowed in front, surface moderately densely punctured, a moderately impressed median line and vague fovea on each side of disc. Elytra subopaque, very indistinctly punctulate. Length .34 inch; 8.5 mm.

Male.—First joint of antennæ stout, feebly compressed, half the length of the head, second joint half the length of first and a little shorter than the third, the latter slightly longer than the fourth, joints 4—11 equal, gradually more slender and very feebly compressed. Anterior tibiæ curved, convex forward, with one terminal spur. First joint of anterior tarsus much shorter than the second, its inner apical angle obtusely prolonged and inner face smooth and concave.

Female.—Anterior tibiæ with two terminal spurs, the first joint of the tarsus longer than the second. Antennæ scarcely differing from the male.

This species was given me by Mr. Carl F. Gissler, who accurately observed its peculiar characters before he sent it.

Occurs in Grant Co., New Mexico.

With this form the differences between *Macrobasis* and *Epicauta* seem to disappear. I place the species in the former genus because the second joint of the antennæ remains large while in all our species

of *Epicauta* the second joint is very small compared with the third. In any future review of the genera of Meloidæ it would be better to restrict the name *Macrobasis* to those species in which the second joint of the antennæ is decidedly *longer* than the third or the antennæ dissimilar in the sexes. This would exclude from Macrobasis, *immaculata*, *segmentata* and *Gissleri*.

Retaining for the present the genera as constituted, the two preceding species require a slight modification of the table of Macrobasis as given by me (Proc. Am. Phil. Soc. 1873, pp. 88—89).

M. linearis having the first joint of the ♂ antennæ as long as the next four together, while the second is as long as the third and fourth together, must be placed in A, near *torsa* from which it may be separated in the table by the absence of contortion at the tip of the first joint and by the first and second joints sulcate. It must be placed between *virgulata* and *torsa*. *M. Gissleri* falls in B, and is easily known by its small size and sexual characters and the second joint of the antennæ rather shorter than the third.

CALOSPASTA Lec.

C. mœsta n. sp.—Elongate, black, shining, glabrous. Head sparsely punctured. Antennæ attaining the middle of the thorax, gradually stouter toward the tip. Thorax a little longer than wide, sides at basal half parallel, apical half gradually convergent to the front, surface very sparsely punctate. Elytra nearly twice as wide at base as thorax slightly wider toward the tip, surface finely scabrous and with two feeble lines extending nearly to tip. Body beneath and legs black, shining and with very short black pubescence. Spurs of hind tibiæ dissimilar, the inner slender and acute, the outer stout, cylindrical and obliquely truncate at tip. Length .64—.90 inch; 16—23 mm.

This species resembles *Cantharis lugens* in its superficial characters and might readily be confounded with it. The claws are however as in Calospasta, the lower portion being here very much shorter than the upper and connate with it.

Two specimens, California, probably from the southern portion.

C. Fulleri n. sp.—Black, opaque, surface sparsely nigro-pubescent, form rather robust. Head opaque, scabrous. Thorax as wide as the head but smaller in size, one-half wider than long, sides posteriorly slightly convergent, apex suddenly narrowed, surface opaque, sparsely punctate. Elytra nearly twice as wide as thorax, slightly wider posteriorly, surface opaque, scabrous, and with very short, indistinct, black pubescence. Body beneath and legs black and shining, sparsely pubescent. Spurs of hind tibiæ slender and acute. Antennæ longer than head and thorax. Length .38 inch; 9.5 mm.

This insect resembles some of the entirely black varieties of *Cantharis stygica*.

One specimen from California, kindly given me by Mr. A. S. Fuller.

The species of this genus are rather heterogeneous in size and aspect and having become moderately numerous require a table giving in short their characters.

They group themselves in the following manner:

Spurs of hind tibiæ slender and similar.....1.
Spurs dissimilar, the inner slender, the outer cylindrical truncate.....2.
1.—Elytra scabrous.
Thorax longer than wide, elytra bluish ornate with yellow.
Elytra with a broad yellow vitta on each; surface subopaque. **elegans.**
Elytra with three broad yellow bands interrupted at suture, surface more shining, less coarsely scabrous.....**perpulchra.**
Thorax wider than long, color black, subopaque..... **Fulleri.**
Elytra quadricostate, color yellow with a brown post-median band and four basal and some apical spots of brown.....**mirabilis.**
2.—Body above entirely black.....**mœsta.**
Body black, thorax red.....**nemognathoides.**

The first two species are very variable in color.

C. elegans, Lec. (*Epic.*) Ann. Lyc. v, 161; (*Lytta*) Proc. Acad. 1853, 341; (*Calosp.*) Class. Col. N. A. p. 273.
var. humeralis, Horn, Trans. Am. Ent. Soc. 1870, p. 93.
C. perpulchra, Horn, loc. cit. p. 92.
C. Fulleri, n. sp.
C. mirabilis, Horn, loc. cit. p. 93.
C. mœsta, n. sp.
C. nemognathoides, Horn, loc. cit. p. 92.

Descriptions of new North American HYMENOPTERA in the collection of the American Entomological Society.

BY E. T. CRESSON.

Family APIDÆ.

Panurgus chalybæus.— ♀.—Steel-blue, sometimes tinged with dark green; head and thorax opaque, very densely punctured, clothed with long whitish pubescence, mixed with black on the face; head wider than thorax, anterior orbits broadly black, subdepressed and silvery-sericeous in certain lights; face very broad; mandibles reddish at tips; scape of antennæ densely clothed with black pubescence, flagellum sometimes testaceous beneath; metathorax truncated posteriorly, uniformly and densely punctured; tegulæ shining black; wings hyaline, faintly dusky at tips; marginal cell pointed at tip, second submarginal cell nearly as long as the first submarginal cell, receiving the first recurrent nervure about one-fourth from the base and the second about one-fifth from the tip; legs black, clothed with long whitish pubescence; abdomen elongate-ovate, depressed, shining steel-blue, densely and minutely punctured, clothed with appressed pale glittering pubescence longer on the sides and more conspicuous on the apical margins of the segments, apex fimbriated with long pale pubescence; venter tinged with brown, the segments fringed at apex with long pale hairs. Length .40—.50 inch.

♂.—Smaller, more pubescent, the face with only a few black hairs on lateral margin; antennæ longer, scape with whitish pubescence; abdomen with erect pubescence longer at base. Length .30—.40 inch.

Hab.—California, (Henry Edwards). Seven specimens. Easily distinguished from all other species known to me by the steel-blue color of the body.

This as well as all the following species described under this genus, have the marginal cell long and pointed at apex.

Panurgus maurus.— ♀.—Entirely deep black, shining, feebly punctured, clothed with a short sparse black pubescence, longer and more dense on face and cheeks; head rather wider than thorax, face broad, clypeus truncate at apex and fringed with pale pubescence; enclosed space at base of metathorax finely longitudinally striated; sides of thorax near intermediate coxæ with a short obtuse tubercle; tegulæ polished black; wings hyaline, faintly dusky at tips, second submarginal cell much narrowed towards marginal, receiving the first recurrent nervure near the base and the second about one-fifth from the tip; legs robust, clothed with short black pubescence, posterior femora armed with a short subacute tooth at extreme base beneath, their tibiæ rather suddenly dilated beneath before apex; abdomen smooth and shining, the apical segments clothed with black pubescence. Length .35 inch.

Hab.—Colorado, (H. K. Morrison). Five specimens.

Panurgus regularis.—♂.—Black, rather shining; head and thorax clothed with a long rather dense cinereous pubescence, very slightly mixed with black; head not wider than thorax, vertex smooth, almost nude and polished, ocelli arranged nearly in a straight line; occiput with a few black hairs; thorax delicately punctured, densely pubescent, that on mesothorax sometimes faintly tinged with ochraceous; base of metathorax opaque; wings faintly tinged with dusky, second submarginal cell much narrowed towards marginal, receiving the first recurrent nervure near the base and the second one-fourth from the tip; legs with rather long whitish pubescence; abdomen oblong-ovate, subdepressed, clothed with a short suberect pale pubescence slightly mixed with black, at the base and sides it is longer, apical margin of each segment with a regular narrow fascia of dense white pubescence. Length .40 inch.

Hab.—California, (Henry Edwards). Three specimens. This has much the general appearance of an *Andrena*.

Panurgus andrenoides.—♂.—Black, shining, clothed with a long whitish pubescence, most dense on face and sides of thorax; head broader than thorax, sinuate on posterior margin; face very broad, ocelli arranged in a slight curve; clypeus, except two black points, and spot on each side of face, pale yellow; mandibles long and slender; antennæ long, scape with long hairs, flagellum fulvous beneath; tegulæ piceous; wings hyaline, iridescent, nervures and stigma brown, second submarginal cell three-fourths the length of the first submarginal, receiving the first recurrent nervure one-fifth from the base and the second same distance from the tip; legs slender, clothed with long pale pubescence; abdomen oblong-ovate, shining, thinly clothed with a short pale pubescence, when viewed in certain lights the apical margins of the segments have a narrow fascia subinterrupted medially. Length .35 inch.

Hab.—Colorado, (Morrison); Texas, (Belfrage). Six specimens. Very closely resembles certain species of *Andrena*.

Panurgus nigrifrons.—♂.—Form of *andrenoides;* entirely shining black, delicately punctured, rather thinly clothed with long pale pubescence; head wider than thorax, face very broad, clypeus large, flat, sparsely punctured, the tip squarely produced and slightly reflexed, the margin subemarginate; mandibles long, acute, and reddish at tip; cheeks flattened, the upper margin carinate; antennæ long, flagellum brownish; tegulæ dull testaceous; wings hyaline, slightly dusky at tips; second submarginal cell nearly as long as the first, narrowed nearly one-half towards marginal and receiving the recurrent nervures one-fifth from base and apex respectively; legs brown, clothed with pale pubescence; abdomen elongate, subdepressed, polished, thinly clothed with short pale pubescence. Length .26 inch.

Hab.—Texas, (Belfrage). One specimen.

Panurgus marginatus.—♀.—Black; head subopaque, flattened, not wider than thorax, clothed with pale pubescence, that on occiput and thorax above short, dense and dull fulvous; clypeus short, very transverse, truncate at apex, which is fringed with long hairs; antennæ short, flagellum pale testaceous beneath towards apex; sides of thorax with long pale pubescence; metathorax sparsely pubescent, the enclosed space at base very well marked, flattened and minutely sculptured; wings as in *andrenoides;* legs subrobust,

rather thickly clothed with pale pubescence, tips of tarsi pale testaceous; abdomen oblong-ovate, shining, thinly pubescent except at apex; apical margin of the segments broadly testaceous, fringed more or less with pale pubescence. Length .35 inch.

Hab.—Kansas, (Prof. F. H. Snow). One specimen. Has much the general appearance of an *Halictus*.

Panurgus halictulus.—♂.—Black, subopaque, clothed with a whitish pubescence, very dense on face, cheeks and sides of thorax; head not wider than thorax, clypeus short, transverse, densely pubescent; antennæ long subcrenulated, flagellum testaceous beneath; thorax above minutely punctured, rather thickly pubescent, enclosed space at base of metathorax flattened; wings as in *andrenoides*, but with darker nervures; legs clothed with white pubescence; tarsi, except base, yellow; abdomen oblong, shining, thinly pubescent, more densely so at sides and apex and the depressed apical margin of the segments have a fringe of thin pale pubescence. Length .35 inch.

Hab.—Colorado, (Morrison); Utah, (Putnam). Five specimens. This also looks very much like an *Halictus*.

Panurgus fimbriatus.—♀.—Black; head and thorax clothed with a rather dense pale pubescence; head not wider than the thorax; face and cheeks thinly pubescent; anterior margin of clypeus transverse; antennæ short, entirely black; thorax above with short, slightly fulvous pubescence; enclosed space at base of metathorax flattened and finely reticulated; wings as in *andrenoides*, with the second submarginal cell more narrowed towards marginal; legs clothed with pale pubescence, quite dense on tibiæ and tarsi; abdomen ovate, depressed, polished, apical margin of the segments depressed, dull testaceous and having a fascia of white pubescence, less conspicuous on basal segments; anal fimbria tinged with fulvous. Length .30 inch.

Hab.—Colorado, (Morrison). One specimen. This may be the ♀ of the preceding species. It has much the appearance of certain species of the following genus, which however have the marginal cell more or less truncate at tip.

Calliopsis coloradensis.—♀.—Short, robust, black: head broader than the thorax, clothed with pale pubescence on vertex and cheeks, face very thinly clothed, the pubescence on vertex slightly tinged with ochraceous; sides of the face extending narrowly nearly to the summit of the eyes, a triangular spot between antennæ, clypeus except two cuneiform black marks sometimes nearly confluent, and base of mandibles occasionally, pale yellow; labrum sometimes brown; flagellum testaceous beneath; thorax above clothed with a short dense dull ochraceous pubescence, the sides with longer whitish pubescence; a narrow slightly interrupted yellow band on posterior margin of prothorax; tegulæ dull testaceous yellow anteriorly; wings faintly dusky, marginal cell long, obliquely truncated at tip, second submarginal as long as the first, much narrowed towards marginal; legs with pale pubescence, more dense on tibiæ and tarsi; four anterior knees pale yellowish; abdomen short ovate, depressed, shining, the segments with an apical fringe of dense white pubescence. Length .33 inch.

♂.—Smaller than the ♀, with the sides of face, clypeus entirely, labrum, mandibles, scape beneath, tips of femora and the tibiæ and tarsi, bright yellow. Length .30 inch.

Hab.—Colorado, (Ridings; Morrison). Five specimens. This closely resembles *andreniformis*, Smith, (of which his *flavipes* is doubtless the male), but is larger, more pubescent and easily distinguished by the yellow mark on sides of the face being attenuated above and extending up on the orbits nearly to the summit of the eye.

Calliopsis zebratus.—♀.—Black; head and thorax rather thickly clothed with a pale glittering pubescence; sides of face narrowly, clypeus except a subtriangular black mark on each side of the middle, a subtriangular spot between antennæ, a round spot on each side, and a dot at base of mandibles, pale yellowish; flagellum testaceous beneath; disk of thorax sparsely pubescent, closely punctured; wings hyaline, second submarginal cell shorter than the first, and much narrowed towards marginal; legs robust, thinly clothed with pale glittering pubescence, four anterior tibiæ short, yellowish in front, their tarsi honey-yellow; intermediate femora compressed and keeled at base beneath; abdomen oblong-ovate, subopaque, segments one to four each with a yellow band across the middle, narrowed within, the fifth segment with a broad yellow band slightly interrupted on the disk; anal fimbria whitish; venter entirely black, the apex with fulvous pubescence. Length .43 inch.

Hab.—Colorado, (Morrison). One specimen. A very handsome species, easily distinguished by the rather broad continuous yellow bands on the abdomen.

Calliopsis scitulus.—♀.—Shining black, thinly clothed with whitish pubescence; head rather broader than thorax, sparsely punctured; a subcuneiform mark on each side of face, subtriangular spot between antennæ, spot on each side of clypeus and spot at base of mandibles, whitish; flagellum dull testaceous beneath; thorax with a few scattered punctures; wings as in *zebratus*; legs subrobust, clothed with pale glittering hairs; knees and line on anterior tibiæ in front, whitish; abdomen ovate, depressed, polished, a sublunate spot on each side of first and second segments, and a rather broad band on the three following segments, sometimes slightly interrupted on the disk and sinuate or subemarginate on each side posteriorly, yellowish-white, apex fimbriated with pale pubescence. Length .30 inch.

Hab.—Colorado, (Morrison). Twenty-two specimens collected. A very pretty little species, easily recognized by the ornamentation of the abdomen.

Calliopsis Edwardsii.—♀.—Black, shining, sparsely punctured, thinly clothed with pale pubescence; a small triangular spot on each side of face, a longitudinal mark on disk of clypeus and spot on base of mandibles, white; flagellum beneath dull testaceous; mesothorax polished, rather thickly punctured in front, smooth on disk; pleura thickly pubescent; wings dusky, veined

as in preceding species; legs clothed with pale pubescence; abdomen ovate, depressed, a rounded spot on each side of first and second segments, a band on third and fourth, broadly interrupted on third and slightly so on fourth, and a dot on each side of fifth segment, whitish; anal fimbria pale; venter piceous, immaculate. Length .35 inch.

♂.—Smaller than ♀; a larger triangular mark on each side of face, a dot between antennæ, clypeus except its apical margin and two minute dots near base, the mandibles except tips, four anterior knees and anterior tibiæ before, all white or yellowish-white; segments 1—5 of abdomen each with a narrow white fascia, those on first and second segments dilated on the sides and interrupted on the disk, the others slightly widened on sides; sixth segment, in one specimen, has a narrow fascia abbreviated laterally. Length .30 inch.

Hab.—California, (H. Edwards). Three specimens.

Calliopsis pictipes.—♂.—Black, shining, delicately punctured, head and thorax thinly clothed with white pubescence; sides of face, spot between antennæ, clypeus, labrum and mandibles, white; flagellum long, testaceous beneath; wings hyaline, veined as in preceding species, costal vein pale testaceous; legs with scattered white pubescence, a line on anterior femora within, all the knees, the four anterior tibiæ in front, their tarsi entirely, base of posterior tibiæ, their extreme tips exteriorly, and first joint of their tarsi, all white; basal joint of posterior tarsi as long as the remaining joints taken together, flat, dilated, truncate at tip, which has a tuft of long pale pubescence; abdomen oblong, convex, smooth and shining, thinly clothed with erect white pubescence, a subapical white band on all the segments except the last, more or less emarginate on each side posteriorly; venter shining black, immaculate. Length .26 inch.

Hab.—Colorado, (Morrison). One specimen. A pretty little species, easily recognized by the curiously formed posterior tarsi.

Calliopsis lateralis.—♀.—Robust, black, shining, sparsely punctured; head and thorax rather thickly clothed with a pale pubescence slightly tinged with ochraceous; a subtriangular spot on each side of face near base of mandibles, an elongate dot on disk of clypeus, and spot on base of mandibles, white; antennæ short, flagellum dull testaceous beneath; disk of mesothorax almost nude, polished; wings faintly dusky, veined as in preceding species; legs subrobust, clothed with short yellowish pubescence; abdomen broad ovate, depressed, shining, minutely punctured at base, a yellowish-white spot on each extreme side of segments 1—4, rounded on one and two and transverse on three and four; anal fimbria ochraceous. Length .35 inch.

Hab.—California, (Crotch). One specimen. This species has a broad abdomen, with pale lateral spots.

Calliopsis mexicanus.—♀.—Black, head and thorax very coarsely confluently punctured, very thinly pubescent; apex of flagellum beneath testaceous; immediately behind the postscutellum the margin of the metathorax is coarsely striated, behind which there is on each side a smooth polished space; wings subhyaline, broadly dusky at apex, second submarginal cell as long as the first, narrowed one-third to marginal, receiving the first recurrent nervure one-third from the base and the second near the tip; posterior tibiæ

thickly clothed with a long pale pubescence; abdomen oblong-ovate, shining, strongly punctured, the depressed apical margin being smooth and impunctured and obscure testaceous, base of third segment and the remaining segments thickly clothed with a short appressed ochraceous sericeous pubescence; anal fimbria ochraceous. Length .35 inch.

♂.—More coarsely punctured than ♀ and more pubescent; abdomen more sparsely and coarsely punctured, the segments depressed at base and having on each side a patch of pale sericeous pile, not very distinct, but seen only when viewed in certain lights. Length .30 inch.

Hab.—Mexico, (Sumichrast). Three specimens. Distinguished from all the other species by the very coarse sculpturing of the head and thorax. Resembles *æthiops* Cress., in form, but much smaller and more coarsely sculptured.

Calliopsis illinoiensis.—♂.—Black, shining, head and thorax quite thickly clothed with a short whitish pubescence, tinged on vertex and mesothorax with ochraceous; sides of face not higher up than clypeus, the clypeus entirely, labrum, middle of mandibles, and dot on tubercles lemon-yellow; flagellum and tegulæ pale testaceous; wings dusky, slightly darker at apex; second submarginal cell narrowed one-half to the marginal, receiving the first recurrent nervure at about one-fourth from the base and the second about one-fifth from the apex; legs clothed with pale glittering pubescence; knees, anterior tibiæ in front, base of posterior pair and all the tarsi pale yellow; abdomen elongate-ovate, shining, thinly pubescent except at tip where the pubescence is rather dense, apical margin of the segments depressed and obscure testaceous. Length .20 inch.

Hab.—Illinois. Six specimens. This was presumed, both by Mr. Smith and myself, to be the ♂ of *andreniformis*, but judging from analogy in *coloradensis*, a closely allied species, the ♂ of *andreniformis* must have a broad form like the ♀, and like that of *flavipes* Sm., which is doubtless the true ♂ of that species.

Calliopsis pauper.—♀.—Uniformly shining piceous black, finely punctured, very slightly pubescent; clypeus with larger scattered punctures; tips of mandibles, flagellum beneath and tegulæ testaceous; mesothorax very finely and densely punctured; metathorax faintly striolate at base; wings hyaline iridescent, slightly dusky at apex, marginal cell obliquely truncate at tip, second submarginal narrowed towards marginal, receiving the first recurrent nervure one-fourth from its base, and the second very near or at the tip; legs clothed with short pale glittering pubescence, anterior pair and all the tarsi brown; abdomen oblong ovate, subconvex, shining, clothed with pale pubescence at apex. Length .22 inch.

♂.—More pubescent than ♀; lower corner of face, clypeus, spot on labrum, and the mandibles white; all the knees, anterior tibiæ, base and apex of two posterior pairs, and all the tarsi yellowish-white. Length .20 inch.

Hab.—New York; Colorado. Six specimens. This little species has the body almost destitute of pubescence, otherwise it closely resembles *illinoiensis*.

Calliopsis californicus.—♂.—Black, shining, thinly clothed with pale pubescence; head thickly punctured; clypeus almost entirely pale yellowish, in two specimens the yellow is reduced to a small spot; scape with long pale pubescence, flagellum dull testaceous beneath; mesothorax and scutellum sparsely punctured; metathorax roughened at base; tegulæ piceous; wings dusky hyaline, with neuration as in *illinoiensis*, except that the marginal cell is more broadly truncated at tip; legs with pale glittering pubescence, spot on all the knees, line on anterior tibiæ and the four anterior tarsi more or less pale yellowish; abdomen oblong, shining, clothed with a short thin appressed pale sericeous pile, much more dense on apical segments, the second, third and fourth segments are slightly constricted at base and have in certain lights a pale sericeous band; venter brownish. Length .25 inch.

Hab.—California, (Edwards, Crotch). Twelve specimens. The pale markings of the head are confined to the clypeus, and specimens will doubtless occur in which that part will be immaculate.

Calliopsis atricornis.—♂.—Shining black, very thinly clothed with pale pubescence; head broad, strongly punctured, triangular mark on each side of face, clypeus, a small triangular spot immediately above, and spot on labrum, white; antennæ entirely black; mesothorax sparsely punctured, scutellum medially depressed, base of metathorax rugulose; tegulæ pale posteriorly; wings dusky, neuration as in *illinoiensis;* legs slender, with thin pale pubescence, tips of tarsi yellowish; abdomen oblong, shining, with only a little pubescence at apex, second, third and fourth segments above transversely depressed at base and apex. Length .33 inch.

Hab.—Colorado, (Morrison). Two specimens. Allied to *californicus* in form, but is larger, head broader and the face differently ornamented.

Calliopsis clypeatus.—♂.—Black, shining, thinly clothed with whitish pubescence; clypeus entirely white; antennæ entirely black; mesothorax finely not closely punctured; metathorax roughened at base; pleura clothed with long pale pubescence; wings hyaline, second submarginal cell about one-half the length of the first, the *first recurrent nervure uniting with the second transverse cubital nervure*, the second recurrent is received by the second submarginal cell near its apex; legs clothed with pale pubescence, long on the femora; anterior knees, line on their tibiæ and basal joint of four anterior tarsi whitish; basal joint of posterior legs pale at base, rather broader than usual; abdomen ovate, subdepressed, smooth and shining, clothed at apex with pale pubescence. Length .23 inch.

Hab.—Colorado, (Ridings). One specimen. Closely resembles *californicus*, but easily distinguished by the different neuration of anterior wings.

Calliopsis atriceps.—♂.—Entirely black, shining, thinly clothed with a long whitish pubescence; head broader than thorax, face very wide, clypeus flat, deeply and widely emarginate anteriorly, leaving the lateral angles prominent and acute, the labrum being retracted; mandibles long and slender; antennæ longer than usual, reaching to the end of the thorax; sides of thorax densely pubescent; tegulæ dull testaceous; wings hyaline, neuration as in

clypeatus except that the second submarginal cell is not so much narrowed towards the marginal; legs piceous, thinly clothed with pale pubescence, tarsi pale brownish; abdomen oblong, smooth and shining, with short scattering pale pubescence, apex tufted with long pale pubescence. Length .25 inch.

Hab.—California, (H. Edwards). One specimen.

Calliopsis lepidus.—♀.—Black, thickly clothed with pale pubescence, slightly mixed with black on vertex and thorax above; spot on sides of face, a dot between antennæ and a short longitudinal mark on disk of clypeus, white; flagellum pale testaceous beneath; mesothorax subopaque, subæneous, minutely and closely punctured, clothed with short sparse pubescence; on postscutellum and pleura the pubescence is long and thick; tegulæ black, polished; wings hyaline, dusky on apical margin, second submarginal cell very much narrowed towards marginal, receiving the first recurrent nervure about one-fifth from the base, and the second recurrent same distance from the tip; legs rather thickly clothed with pale pubescence, which on the broad basal joint of tarsi beneath is short dense and fulvous, this joint on the posterior pair has a tuft of long pubescence at the tip above, having the appearance of a spur; abdomen ovate, subconvex, shining, sericeous, the segments depressed on apical margin and having a narrow fringe of white pubescence widely interrupted on first segment; sides and apex fringed with longer pale pubescence. Length .30 inch.

Hab.—Georgia, (Morrison). One specimen. A very distinct species, having much the appearance of an *Halictus*.

Calliopsis abdominalis.—♀.—Black, opaque, finely and densely punctured, head and thorax clothed with a very short sparse pale subsericeous pile; a large transverse spot on middle of face, sinuate beneath, base of mandibles, anterior half of tegulæ, and tubercles, yellow; flagellum beneath and posterior half of tegulæ testaceous; posterior margin of prothorax pale sericeous; scutellum and postscutellum unusually large and transverse, fulvous; metathorax short and broadly rounded, finely sculptured, more or less stained with fulvous; wings uniformly pale fuscous, stigma dull fulvous: legs subrobust, four anterior knees, their tibiæ except tips and base of their tarsi yellowish, posterior tibiæ rather thickly pubescent, the basal joint of their tarsi with a long spur of pubescence at apex; abdomen oblong-ovate, subdepressed, fulvous, apical margin of the segments depressed and golden yellow in certain lights; a round black spot on each extreme side of second segment, and a black band on base of third to fifth segments, reduced in one specimen to a small lateral spot, anal fimbria pale yellow; venter varied with black and fulvous. Length .33 inch.

♂.—Much narrower than ♀ and more pubescent; the face entirely, labrum, mandibles except tips, scape beneath, tegulæ anteriorly, tubercles and the legs yellow; scutellum obscure fulvous; abdomen entirely fulvous except black spot on each side of second segment and a blackish stain on each side of apical segment. Length .28 inch.

Hab.—Texas, (Heiligbrodt). Four specimens. Easily recognized by the fulvous abdomen.

Perdita hyalina.—♂.—Form elongate; head and thorax bluish green, rather thickly clothed with an erect white pubescence; head not wider than thorax, clypeus slightly protuberant; mandibles long, slender, simple, reddish at tips; antennæ pale testaceous beneath; prothorax unusually narrow above,

nearly subquadrate, the sides broadly and deeply grooved, mesothorax and scutellum delicately punctured, a finely impressed longitudinal line on each side over tegulæ; metathorax smooth shining, impressed above at base; tegulæ pale testaceous; wings whitish-hyaline, nervures and stigma pale yellow, marginal cell as long as first submarginal, broadly truncated at tip, second submarginal half the length of the first and narrowed to marginal; legs slender, piceous, thinly clothed with white pubescence, anterior tibiæ in front and all the tarsi pale; abdomen oblong-ovate, depressed, black, the depressed apical margins of the segments very pale, almost whitish, and more or less thinly fringed with white pubescence, more obvious on apical segments, extreme lateral margin of segments and the terminal segment testaceous. Length .32 inch.

Hab.—Colorado, (Ridings, Morrison). Two specimens.

Perdita zebrata.—♀.—Very much like *albipennis* Cress., but smaller; head and thorax blue or greenish blue, thinly clothed with pale pubescence; a deep longitudinal groove on anterior orbits, more conspicuous than in *albipennis;* sides of face narrowed above, clypeus, two dots above, sometimes confluent, occasionally an irregular transverse line on front above antennæ, labrum, mandibles except tips, scape beneath, interrupted band on prothorax, tubercles and tegulæ white or yellow; sometimes the clypeus has two or more black dots; flagellum pale testaceous, brown above; thorax smooth and shining; wings whitish-hyaline, nervures and stigma white or yellowish, neuration as in *hyalina;* legs yellow the two anterior pairs more or less black behind, posterior femora above and their tibiæ except base, black, tarsi varied with fuscous; abdomen oblong-ovate, flat, shining, yellow, with more or less broad black or brown band at apex of each segment above; in well marked specimens these bands bend obliquely downwards on base of the following segment; the first segment being black or brown with a yellowish band on the disk; apical segments fringed with pale hairs; venter yellow. Length .25 inch.

Var.—Four anterior legs entirely yellow; abdomen yellow with narrow blackish band at apex of segments 1—4, ending laterally in a dot which is sometimes separated from the band.

Hab.—Colorado, (Ridings, Morrison). Seven specimens. This species is quite variable in its markings and specimens will doubtless be found with the abdomen entirely yellow.

Mr. Frederick Smith, to whom specimens were sent, refers this species to *Nomioides* Schenck.

Perdita affinis.—♀.—Form of *zebrata;* head and thorax blue or greenish-blue thinly clothed with pale pubescence; sides of face, narrowed above, clypeus except sometimes two or more black points, occasionally a spot or two above clypeus, base of mandibles, scape beneath, a spot on each side of prothorax, tubercles and tegulæ pale yellow; flagellum pale testaceous beneath; wings as in *zebrata;* legs black with pale pubescence, the knees, and the four anterior tibiæ in front yellowish; abdomen black, shining, a yellowish band on segments 1—4, interrupted on the disk and more or less dilated and oblique on the sides; fifth segment immaculate and fringed with pale pubescence; apical segment testaceous; generally, the spot on each side of fourth segment does not reach the lateral margin. Length .20—.25 inch.

♂.—Face, clypeus, labrum, mandibles, lower posterior orbits, antennæ beneath, two spots on prothorax, tubercles, tegulæ and most of four anterior legs, yellow; abdomen with yellowish band on segments 1—3, slightly interrupted on disk and dilated laterally on second segment; fourth segment with two small pale spots. Length .20 inch.

Hab.—Colorado, (Ridings). Five specimens. Closely resembles 8-*maculata* Say, but much smaller and with clearer wings.

Perdita obscurata.—♀.—Form of *zebrata;* head and thorax blue, thinly clothed with pale pubescence; sides of face, sides of clypeus, spot on disk, mandibles except tips, scape beneath, spot on each side of prothorax, tubercles and tegulæ, yellowish; flagellum testaceous beneath; thorax smooth and shining; wings as in *zebrata* except that the second submarginal cell is smaller, being scarcely more than one-third the length of the first submarginal; legs brown, with pale pubescence, knees, four anterior tibiæ in front and all the tarsi yellowish; abdomen piceous, shining, pubescent at tip, an obscure yellowish fascia, interrupted medially at base of segments 2—4. Length .23 inch.

♂.—Brighter in color and more pubescent; all beneath antennæ, narrow line on lower posterior orbits, scape entirely, flagellum except brown line above, interrupted line on prothorax, tubercles, tegulæ and the legs entirely except spot on apex of posterior femora above and their tibiæ above, bright yellow; a narrow uneven, ill-defined yellowish band at base of segments 2—6, apical segment and venter fulvo-testaceous. Length .20 inch.

Hab.—Georgia, (Morrison). Two specimens.

Perdita interrupta.—♂.—Head and thorax blue, thinly clothed with pale pubescence; head broader than thorax, face broad and rather thickly pubescent, lower corner of face, clypeus, labrum, and mandibles except tips white; flagellum pale beneath; thorax subopaque, tegulæ dull testaceous; wings hyaline, neuration as in *hyalina;* legs black, thinly clothed with pale pubescence, knees and line on the four anterior tibiæ, and their tarsi yellowish; abdomen oblong-ovate, convex, shining black, a pale yellowish fascia on segments 2—5, interrupted on the disk and more or less suddenly dilated laterally, sometimes a pale lateral spot on sixth segment. Length .23 inch.

Hab.—California, (Crotch). Three specimens.

Macrotera texana.—♀.—Piceous, smooth and shining, rather thinly clothed with a short whitish pubescence, sparsely punctured; head a little wider than thorax, anterior orbits with a deep longitudinal groove, clypeus with a few coarse punctures, tips of mandibles reddish; antennæ short, flagellum brown; metathorax very short, transverse rounded on the sides; tegulæ pale testaceous; wings hyaline, nervures brown; marginal cell about as long as first submarginal, obliquely truncate at tip, appendiculate, second submarginal about half the length of the first, narrowed one-half towards marginal; legs clothed with pale pubescence, that on posterior tibiæ long and loose; abdomen ovate, depressed, apical margin of segments obscurely testaceous, anal fimbria short and pale; venter broadly fasciate with testaceous. Length .35 inch.

Hab.—Texas, (Heiligbrodt). Three specimens.

Macrotera megacephala.—♂.—Head very large, transversely subcompressed, shining brown, finely punctured; face very broad, prominent between antennæ, the anterior margin truncate, clypeus small, short, coarsely punctured. mandibles long, pale testaceous, fuscous at tips, a moderately deep longitudinal groove on anterior orbits above the antennæ which are short and fuscous; thorax smaller than head, black, prothorax transversely compressed; metathorax smooth and shining; tegulæ pale testaceous; wings as in *texana;* legs brown, with short pale pubescence; abdomen short ovate, subconvex, shining, reddish-brown or ferruginous, apex with a few pale hairs, sides of second and third segments with a submarginal groove; anal segment small, quadrate, flattened, coarsely punctured. Length .26—.30 inch.

Hab.—Texas, (Heiligbrodt). Three specimens. This may be the ♂ of *texana*. The head is very broad, and is larger in the specimen with dark abdomen; otherwise there appears to be no difference between them.

Macrotera californica.—♂.—Head and thorax blue, or greenish-blue, thinly clothed with whitish pubescence; head broader than thorax; face broad, a short indistinct groove on upper anterior orbits; clypeus broadly subtriangular, the lateral corners reaching the base of mandibles, the apex deeply emarginate for the labrum which is deeply foveate; broad lower margin of face, sometimes a dot beneath insertion of each antenna, clypeus except two black points near base, labrum and mandibles, except tips, white or yellowish white; antennæ pale testaceous beneath; mesothorax delicately punctured, with a finely impressed longitudinal line on each side over tegulæ; metathorax smooth, broadly rounded; tegulæ pale testaceous; wings hyaline, neuration much as in *texana*, except that the marginal cell is shorter and squarely truncate at tip; legs black, thinly clothed with pale pubescence, anterior tibiæ in front and all the tarsi testaceous; abdomen short, ovate, convex, shining, black, the segments rather broadly margined at base and apex with dull testaceous, apex incurved, the terminal segment short and broad, apical margin sinuate and having beneath two divergent obtuse teeth. Length .25 inch.

Hab.—California, (Edwards, Crotch). Three specimens.

Macrotera cephalotes.—♂.—Lemon-yellow, shining; head very large, transversely quadrate, slightly emarginate above, and broadly truncate beneath, middle of vertex longitudinally impressed, face very broad, clypeus exceedingly small, tuberculiform, tinged with fulvous; labrum also very small; mandibles large, broad at base, acute and simple at tip; a sinuate band from eye to eye at summit, a punctiform dot just below on anterior orbits and tips of mandibles black; antennæ ———; thorax smaller than head; prothorax prominent, formed much as in the Sphegidæ; a stripe on each side of prothorax, another beneath wings, pleura beneath, and the metathorax except two pale spots black or bluish-black; wings whitish-hyaline, neuration as in preceding species; legs entirely yellow; abdomen broadly ovate, nearly circular, flattened, smooth and polished, base of first segment and a band near apical margin blackish, the remaining segments tinged with brownish on apical margins; apex acuminate. Length .25 inch.

Hab.—Nevada, (H. Edwards). One specimen. A very curiously formed species.

Nomada Edwardsii.—♂.—Black, head and thorax closely and deeply punctured; sides of the face, narrowed above but not quite reaching the summit of eyes, spot on vertex beneath ocelli, clypeus except two black dots, spot above, labrum, mandibles except tips, posterior orbits, scape beneath, collar, lateral margin of mesothorax dilated anteriorly, two short lines on disk, tubercles, large mark on pleura, scutellums, large angular mark on each side of metathorax, and tegulæ, all lemon-yellow: flagellum ferruginous at base and beneath, second and third joints subequal, the second slightly longer; wings dusky, darker at apex; legs yellow, coxæ, femora and tibiæ behind more or less black; abdomen very minutely punctured, lemon-yellow, basal half of first segment and basal margin of remaining segments, black. Length .50 inch.

Hab.—California, (Henry Edwards). One specimen. This fine species closely resembles *superba* Cress., but is quite distinct.

In giving the relative lengths of the third and fourth joints of antennæ, (second and third of flagellum), the view is always taken from beneath, the greatest difference being generally noticeable in the males.

Nomada Morrisoni.—♀.—Ferruginous; head and thorax densely and confluently punctured; sides of face, clypeus, spot above, labrum, base of mandibles, posterior orbits, collar, tegulæ, tubercles, band or two spots on scutellum, generally a line on postscutellum, and a more or less distinct mark on pleura, yellow; dot on each side of clypeus at base, space around base of antennæ, spot enclosing ocelli, posterior margin of head, most of prothorax, anterior middle of mesothorax, and the metathorax, except two yellow spots sometimes margined with ferruginous, black; antennæ pale ferruginous, third and fourth joints equal in length; scutellum slightly bilobate; wings faintly dusky, darker at apex; legs pale ferruginous, knees and tibiæ more or less yellow, coxæ black behind; abdomen shining, very minutely punctured, yellow, basal half of first segment ferruginous, apical margin of segments 1—4 narrowly brown or ferruginous; venter yellow, ferruginous at base; the yellow band on first segment is often more or less deeply notched on the anterior middle. Length .40—45 inch.

Hab.—Colorado, (H. K. Morrison). Eight specimens.

Nomada Belfragei.—♀.—Form short, unusually robust, ferruginous, head strongly, clypeus finely, and mesothorax coarsely and confluently punctured; line connecting ocelli and tips of mandibles black; flagellum fuscous above, the second joint of flagellum longer than third; collar, tubercles, two spots on scutellum and line on postscutellum obscurely yellow; scutellum strongly bilobate; metathorax nearly smooth, with white pubescence laterally: pleura strongly and sparsely punctured; wings fuscous on apical margin; abdomen finely and closely punctured shining, a large ovate spot on each side of first and second segments, largest on second, an interrupted band on third and a narrower band on fourth and fifth, yellow; venter immaculate. Length .40 inch.

Hab.—Texas, (G. W. Belfrage). A very distinct species, with an unusually robust form.

Nomada zebrata.—♀.—Ferruginous: head and thorax very densely punctured; sides of face, collar, tubercles, tegulæ, scutellums, spot on each side of metathorax, and large irregular longitudinal mark on pleura, pale yellow; tips of mandibles black; second and third joints of flagellum subequal, the second slightly longer; wings hyaline, dusky at apex; legs pale ferruginous, spot on coxæ and knees yellow; abdomen dull ferruginous, an interrupted band on first segment, a band on the second, third and fourth segments, narrowed in the middle, that on second broadest, and the fifth segment entirely, yellow; venter banded with yellow. Length .40 inch.

♂.—Marked similar to ♀ but brighter in color; sides of face, clypeus, spot above, orbits, clypeus, labrum, and mandibles except tips, yellow; scape short, broadly dilated, almost globose, second joint of flagellum much longer than third; spot behind antennæ, spot connecting ocelli, and spot at base of metathorax black; the yellow on scutellum is generally divided into two spots by a narrow ferruginous line; abdomen with six yellow bands and the venter banded and spotted with yellow; the head above antennæ, the flagellum except base and the mesothorax sometimes varies to black instead of ferruginous, and in two specimens from Kansas the prevailing color of both thorax and abdomen is black. Length .45 inch.

Hab.—Colorado; Kansas, (Ridings). Six specimens. The ♂ of this species is readily distinguished by the short dilated scape.

Nomada opposita.—♀.—Pale ferruginous, head and thorax very densely punctured, clothed with pale pubescence; sides of face, clypeus, spot above, labrum, base of mandibles, collar, tubercles and postscutellum, yellow; tips of mandibles, line connecting ocelli, anterior suture of thorax narrowly and the metathorax, except a large ferruginous mark on each side enclosing a yellow spot, black; antennæ entirely pale ferruginous, third and fourth joints equal in length; scutellum bilobate pale ferruginous; wings dusky at tips; abdomen minutely punctured, apical margin of the segments narrowly fuscous, a spot on each side of third segment, and broad band on fourth and fifth segments, yellow; venter varied with yellow. Length .38 inch.

Hab.—California, (H. Edwards). One specimen.

Nomada adducta.—♂.—Head ferruginous, closely punctured; large spot on vertex extending more narrowly back to occiput covering ocelli, posterior margin of head and tips of mandibles, black; sides of face, clypeus and base of mandibles, yellow; antennæ rather short, fuscous, paler beneath, scape short, dilated, ferruginous at base; third joint slightly longer than fourth; thorax black, densely and strongly punctured; a large mark on each side of mesothorax, the scutellums and most of pleura, ferruginous; scutellum bilobate; metathorax not distinctly sculptured, the sides with patch of silvery pile; an obscure yellowish line on each side of collar; tegulæ and tubercles, ferruginous; wings hyaline, fuscous at extreme tips; legs ferruginous, base of coxæ and of femora more or less, spot at tip of posterior tibiæ and base of their tarsi, black; abdomen closely punctured, ferruginous, immaculate except a black band on first segment and a dusky spot on each side of second; extreme lateral apical margin of the segments and apex with white pubescence. Length .36 inch.

Hab.—Colorado, (Morrison). One specimen. The scape resembles that of *zebrata* in shape, although not so much dilated.

Nomada affabilis.—♂.—Black; head and thorax densely and confluently punctured, thickly clothed with short pale pubescence; sides of face, clypeus, spot above, labrum, mandibles except tips, dot at summit of eyes, posterior orbits, scape beneath, collar, tubercles, tegulæ, scutellums, spot on each side of metathorax and two spots or band on pleura, yellow; flagellum fulvous beneath, second joint slightly longer than third; scutellum bilobate; wings hyaline, faintly dusky at tips; legs ferruginous, the tibiæ and tarsi more or less yellow, posterior femora and tibiæ black behind; abdomen closely and finely punctured, a yellow band on all the segments except the last, broadest on second, all more or less narrowed in middle and that on first segment sinuate; venter banded with yellow. Length .40—.45 inch.

Hab.—New York; Illinois. Two specimens. This looks much like the ♂ of *vincta* Say, which however has the second joint of flagellum much shorter than the third.

Nomada Ridingsii.—♀.—Black, head and thorax strongly punctured; face shining, sparsely punctured; large irregular mark on each side of face, spot on base of mandibles, short line on posterior orbits, collar, tubercles, tegulæ, two spots on scutellum, postscutellum and lunate mark on pleura, white; labrum, mandibles, antennæ, spot beneath wings, sides of metathorax and the legs ferruginous; antennæ short, second joint of flagellum longer than third; mesothorax coarsely and confluently punctured; scutellum slightly bilobate; base of metathorax smooth, impunctured, sides clothed with short silvery pubescence; wings fuscous at tips; abdomen closely and strongly punctured, ferruginous, segments 1—5 each with a white band, broad and even on the first, broad and dilated laterally on second and narrow on the remaining segments; venter ferruginous with a white dot on each side of the third segment. Length .40 inch.

Hab.—Colorado, (Mr. James Ridings). This handsome species resembles *Putnami* Cress., which however has the mesothorax sparsely punctured and shining; the ornamentation is very much alike in both species.

Nomada suavis.—♀.—Black, opaque; head and thorax strongly punctured, mesothorax coarsely so; face shining, sparsely punctured; sides of face nearly up to summit of eyes, clypeus, confluent spot above, labrum, mandibles except tips, dot below anterior ocellus, posterior orbits, scape beneath, collar, tubercles, tegulæ, band or two spots on scutellum, postscutellum, two ovate spots on metathorax, and large mark on pleura, lemon-yellow; flagellum dull testaceous, brown above, second joint longer than third; scutellum bilobate; wings fuscous on apical half with hyaline mark beneath marginal cell; legs yellow more or less black behind, four anterior femora generally fulvous at base before; abdomen closely and rather strongly punctured, black with a yellow band on segments 1--4, very broad and dilated laterally on second, fifth segment entirely yellow, apical margin of the segments often tinged with fulvous especially on the sides; venter banded with yellow, the last segment with a large round yellow spot on each side. Length .35 inch.

♂.—Resembles the ♀, but the metathorax is black immaculate, clothed laterally with silvery-white pubescence. Length .40 inch.

Hab.—California, (Behrens); Oregon, (H. Edwards).

Nomada Snowii.—♀.—Black, opaque, densely and strongly punctured; middle of face, clypeus, antennæ at base and beneath, pleura beneath, two dots on metathorax and flanks, legs and first abdominal segment above and beneath, ferruginous; mark on each side of face, apex of labrum obscurely, spot at base of mandibles, posterior orbits, collar, tubercles, tegulæ, scutellums and large mark, notched behind, on pleura, white; second joint of flagellum equal in length with the third; scutellum nearly flat, very faintly impressed medially; wings slightly dusky, hyaline near tips; line on four anterior femora beneath near tips, line on all the tibiæ at base and spot at tips, white; abdomen opaque finely and closely punctured, a dot on each side of first segment near apex, a broad band narrowed medially on segments 2—4, and the fifth segment entirely pale yellowish-white; venter banded with white. Length .34 inch.

♂.—Marked like the ♀, but without any ferruginous color, except on antennæ beneath and on legs; sides of face, clypeus, labrum, mandibles except tips, spot on scape beneath, collar, scutellums, tubercles, large notched mark immediately beneath tubercles and tegulæ, yellowish-white; face silvery; legs ferruginous, the femora more or less black behind, knees and tibiæ in front yellow, a black spot on four posterior tibiæ near tips; first segment of abdomen with a narrow yellow band, deeply indented on each side anteriorly and nearly interrupted on the disk, segments 2—6 each with a yellow band, broad on second segment and narrowed in the middle; venter banded with yellow. Length .35 inch.

Hab.—Colorado, (Prof. F. H. Snow ♀; Morrison ♂). Two specimens. A very pretty species.

Nomada Heiligbrodtii.—♀.—Black, opaque, coarsely and confluently punctured; mouth tinged with ferruginous; large cuneiform spot on each side of face, spot on base of mandibles, spot on upper posterior orbits, collar, two spots on scutellum, postscutellum, tubercles, sublunate spot on pleura and tegulæ, white; antennæ with three basal joints ferruginous, third joint longer than fourth; metathorax immaculate, impunctured, clothed laterally with pale pubescence; wings fuliginous along costa and at tip; legs entirely ferruginous; abdomen finely and closely punctured, rather shining, a continuous yellowish-white band on segments 1—5, that on second segment dilated laterally, and that on the fifth subinterrupted medially; venter black, with a narrow curved pale line on each side of third and fourth segments. Length .35 inch.

♂.—Smaller and more slender than ♀, and more shining, with the pale markings lemon-yellow; the entire face beneath antennæ is yellow; antennæ entirely ferruginous except at tip above; the yellow spot on pleura reduced to a dot; wings darker; the yellow bands on abdomen are broader and interrupted medially on segments 2—4, while on basal segment there is only a small lunate spot or line on each side near apex, sixth segment with a yellow spot on each side; venter black immaculate. Length .29 inch.

Hab.—Texas, (Mr. L. Heiligbrodt). Three specimens. This is closely allied to *modesta* Cress., which always has a yellow spot on each side of metathorax.

Nomada Krugii.—♀.—Black; head and thorax densely and rather finely punctured; face, sides of thorax and of metathorax clothed with a fine silvery-white sericeous pile; sides of face, spot at base of mandibles, posterior

orbits, collar, band or two spots on scutellum, short line on postscutellum, two spots on metathorax, tubercles, lunate mark on pleura, and tegulæ, yellow; face smooth and shining, very finely punctured; mandibles, antennæ beneath and legs ferruginous; second and third joints of flagellum short, about equal in length; scutellum bilobate; wings hyaline, fuscous at extreme tip; a fuscous spot or line on posterior tibiæ behind; abdomen shining; a band near apex of first and second segments narrowed in the middle, a transverse spot on each side of third and fourth segments and a band on the fifth, yellow; venter with a broad yellow band on third segment. Length .30 inch.

♂.—Marked like the ♀ except that the clypeus, spot above, and labrum, are yellow; posterior legs behind and broad line on their tibiæ in front black, knees, line on all the tibiæ in front, base and apex of posterior pair, and base of their tarsi yellow. Length .30 inch.

Hab.—Porto Rico, (Mr. Leopold Krug). Four specimens. Resembles *cubensis* somewhat in ornamentation.

Nomada limata.—♀.—Black or brown, and shining, clothed with short pale pubescence, longer and more dense on sides of abdomen; a line on anterior orbits curved inwardly to clypeus, a dot on clypeus, collar, tubercles, a dot on pleura, a bilunate line on scutellum, and the postscutellum, white; antennæ brown, ferruginous at base, third joint a little longer than fourth; mesothorax smooth, polished, impunctured; scutellum flat; pleura rather coarsely punctured; metathorax with whitish pubescence at sides; tegulæ ferruginous; wings subhyaline, costal margin broadly fuliginous; legs brown or black, immaculate; abdomen finely punctured, clothed above with a short sericeous pile, base tinged with ferruginous, a narrow continuous whitish band on segments one, two, and four, and a broader interrupted one on fifth segment; venter immaculate. Length .35 inch.

Hab.—Mexico, (Sumichrast). One specimen. This resembles very closely the *tibialis* Cress., from Cuba, but in that species the legs are red and the wings are dusky only at tip; in both species the mesothorax is polished and impunctured.

Nomada mexicana.—♀.—Black, opaque, head and thorax strongly and confluently punctured; narrow anterior orbits ending in small spot on each side of clypeus, narrow posterior orbits, spot on middle of clypeus, spot on base of mandibles, collar, band at base of scutellum, one on postscutellum, spot on each side of metathorax, and three spots on pleura, whitish; base of antennæ, tubercles, tegulæ and legs ferruginous; third and fourth joints of antennæ about equal in length; scutellum obliquely flattened, roughly sculptured; wings hyaline, costal margin fuliginous; abdomen slightly ferruginous at extreme base, a narrow whitish band on first and second segments, curved anteriorly on the lateral margin, fourth and fifth segments each with an narrow ill-defined pale band abbreviated laterally; venter with a pale spot on disk of first segment and a broad band on second segment. Length .35 inch.

Hab.—Mexico, (Sumichrast). One specimen. Marked much like *limata*, but more slender in form and separated at once from that species by the coarsely sculptured mesothorax.

Nomada pilosula.—♂.—Black, immaculate, shining, rather thickly clothed with pale pubescence, finely punctured; head slightly narrower than thorax; eyes large, the front narrowed above, so that the space between the eyes and ocelli is quite narrow; antennæ short, slender, flagellum ferruginous, second and third joints short and equal in length; mesothorax finely and sparsely punctured; scutellum subbilobate; base of metathorax depressed and polished; wings hyaline, dusky on apical margin; legs tinged with brown, thickly clothed with whitish pubescence, tarsi more or less testaceous; abdomen short-ovate, polished, the apical margin of the segments fringed with whitish pubescence; venter brown, fringed with pale hairs. Length .40 inch.

Hab.—New York. One specimen. More pilose than any species known to me, and easily recognized by the color being entirely black, and the surface smooth and shining.

Nomada scita.—♂.—Black, opaque; head and thorax strongly and confluently punctured, clothed with whitish pubescence; face silvery sericeous; sides of face, clypeus, spot above, labrum, mandibles except tips, antennæ beneath, two spots on collar, tubercles and tegulæ, yellow; antennæ blackish above, except in middle and extreme tip which are pale fulvous, scape very robust cylindrical, third joint about half the length of fourth which is joined obliquely to the third and narrowed at tip, the flagellum crenulated when viewed laterally; scutellum subbilobate, entirely black, a minute pale spot on each side of postscutellum; wings hyaline, with a dusky spot at tip, third submarginal cell narrowed almost to a point towards marginal; legs pale ferruginous or fulvous, most of coxæ and trochanters beneath, black; abdomen shining, finely punctured, a narrow interrupted band on first segment, and an continuous band on the following segments, broadly dilated laterally on second, white; venter brown. Length .30 inch.

Hab.—Colorado, (Morrison). One specimen. A beautiful little species, with antennæ formed like those of *articulata* Smith.

Nomada accepta.—♀.—Black, opaque; head and thorax coarsely and densely punctured; orbits, very broad anteriorly, clypeus except base, labrum, mandibles, antennæ, collar, four stripes on mesothorax, scutellums, four spots on metathorax, tubercles, most of pleura and tegulæ, ferruginous; antennæ dusky above, third joint much shorter than fourth; scutellum strongly bilobate, shining; wings dusky, with hyaline spot near tip; legs ferruginous, coxæ and femora more or less black at base; abdomen shining, closely and minutely punctured, varied with ferruginous, a narrow sinuate subinterrupted band on first segment, a broad band on second segment, narrowed gradually to middle where it is slightly interrupted, a line on each side of third segment and the fifth segment notched on each side posteriorly, all white; posterior margin of third segment broadly ferruginous; venter ferruginous, varied with blackish. Length .30 inch.

Var. ♀.—Abdomen entirely black above except a transverse cuneiform spot on each side of second segment, a spot on each side of third, an interrupted band on the fourth, and a square spot on middle of fifth segment, all white. Length .30 inch.

♂.—Larger and more robust than ♀, black; sides of face narrowly, anterior margin of clypeus, and scape beneath white; labrum, mandibles, flagellum

beneath, line on collar, tubercles, scutellum, tegulæ, spot before and mark on pleura, ferruginous; wings hyaline, apical margin fuscous; legs ferruginous, coxæ and femora behind black; abdomen marked as in ♀, except that the fourth, fifth and sixth segments are ferruginous with a narrow white band, venter with four white spots. Length .35 inch.

Hab.—Colorado, Kansas, (Snow ♂, Morrison ♀). Three specimens.

Nomada vitticollis.—♀.—Yellow, opaque, head and thorax densely and strongly punctured; vertex except sides and spot beneath ocelli, and the occiput, black; flagellum ferruginous, second and third joints subequal, the former slightly longer, scape yellow, black behind; mesothorax black with four longitudinal yellow lines; sutures of the thorax narrowly and a stripe on middle of metathorax black; scutellum obliquely flattened, not at all depressed medially; wings faintly dusky, darker at tip; legs pale yellow, a stripe on posterior femora above and beneath and their tibiæ within fuscous; abdomen strongly narrowed at base, blackish above, segments 1—5 each with a narrow yellow band, broader on the sides, that on first segment with a fuscous dot on each side posteriorly, apical margin of first segment broadly dull testaceous; venter yellow. Length .35 inch.

Hab.—Mexico, (Sumichrast). One specimen.

Nomada civilis.—♂.—Black, opaque; head and thorax densely and confluently punctured and thickly clothed with short pale pubescence; sides of face extending narrowly up on anterior orbits, clypeus, sometimes a spot above, labrum, mandibles except tips, posterior orbits, scape beneath, line or two spots on collar, sometimes wanting, tubercles, irregular mark beneath, occasionally a small spot on each side of metathorax, and the tegulæ yellow; scape robust, flagellum ferruginous with a black line above, second joint a little shorter than third; scutellum not at all prominent; wings faintly dusky at tips; legs yellow, coxæ at base, all the femora behind more or less, and a spot on all the tibiæ behind, black; tarsi more or less ferruginous; abdomen shining, yellow, basal half of first segment and narrow basal margin of remaining segments black, apical margin of segments 1—4 narrowly fuscous, anterior margin of yellow band on first segment sinuate; venter yellow, sometimes banded with black. Length .35—.45 inch.

Hab.—Colorado, (Ridings, Morrison). Nine specimens. This is closely allied to the ♂ of *luteola* St. Farg.

Nomada vicinalis.—♂.—Black, opaque; head and thorax densely and finely punctured and rather thickly clothed with short pale pubescence, tinged with yellowish on vertex and thorax above, on face and sides of thorax silvery sericeous; an emarginate line on sides of face, line beneath eyes, clypeus, labrum, base of mandibles, scape beneath, tubercles and spot beneath, yellow; scape behind and spots on basal half of flagellum behind black; second joint of flagellum rather more than one-half the length of third; two narrow obscure stripes on mesothorax, scutellum and tegulæ, ferruginous; scutellum subbilobate, not prominent; wings narrowly fuscous on apical margin; legs ferruginous, posterior coxæ and all the femora behind more or less black; abdomen smooth and shining ferruginous, basal half of first segment and spot on extreme

sides of the segments black; a yellow band, more or less interrupted on middle on segments 1—6, broader and narrowed towards middle on second segment; venter ferruginous, spotted or banded with yellow. Length .40 inch.

Hab.—Colorado, (Morrison). Two specimens. This may be only a variety of the preceding species.

Nomada rivalis.—♂.—Black, opaque; head and thorax densely punctured, rather thickly clothed with pale pubescence, which is darker on vertex and thorax above; sides of face, lower posterior orbits, clypeus, spot above, labrum, mandibles except tips, scape beneath, collar, two spots on scutellum, tubercles, a more or less large irregular mark on pleura, and tegulæ, yellow; antennæ black behind, scape robust, flagellum ferruginous beneath, second joint about one-third the length of third; scutellum subbilobate, not prominent; wings faintly dusky at tips; legs yellow, tinged with ferruginous, coxæ at base, trochanters behind, four posterior femora at base and behind, and spot or stripe on their tibiæ black; abdomen shining, black, a broad yellow band on all the segments, that on the first deeply notched in the middle anteriorly, the others more or less narrowed in the middle anteriorly, venter yellow. Length .40 inch.

Hab.—California, (H. Edwards, Behrens). Three specimens. This and the next species resemble the two preceding species in color and ornamentation, but are distinguished at once by the second joint of the flagellum being much shorter in proportion to the length of the third joint.

Nomada fragilis.—♂.—Black, opaque; head and thorax densely punctured, rather thickly clothed with pale pubescence; line on sides of face, clypeus, labrum, base of mandibles, line beneath eyes, scape beneath, tubercles, sometimes a spot beneath, and occasionally two spots on scutellum, pale yellow; antennæ long, black behind, scape robust, flagellum ferruginous, second joint about one-fourth the length of third; scutellum not prominent; tegulæ and legs ferruginous, coxæ and all the femora more or less behind black, sometimes the posterior femora is almost entirely black as well as their tibiæ behind and base of tarsi; wings dusky on apical margin; abdomen marked as in the preceding species. Length .30 inch.

Hab.—Colorado, (Ridings, Morrison). Three specimens.

Nomada citrina.—♀.—Black, opaque; head and thorax strongly and densely and face finely punctured; sides of face, clypeus except black dot on each side, spot above, labrum, mandibles except tips, broad posterior orbits, spot beneath lower ocellus, scape beneath, collar, tegulæ, spot before, scutellums, spot on each side of metathorax, tubercles and pleura laterally and beneath, all pale lemon-yellow; the pleura has a black dot beneath wings and a short black line behind each anterior coxa; antennæ rather long, flagellum fulvous, black at tip, second joint a little shorter than third, both together being longer than scape; scutellum bilobate; wings varied with fuscous; legs pale lemon-yellow, coxæ and femora above and behind and a stripe on four posterior tibiæ behind, black; tips of tarsi fulvous; abdomen pale lemon-yellow, subopaque, base of first, and narrow apical margin of first and second segments black,

narrow apical margin of third and fourth segments dull testaceous; venter lemon-yellow. Length .40 inch.

Hab.—California, (H. Edwards). One specimen. Closely resembles *Edwardsii*, but the second joint of the flagellum is shorter than the third.

Nomada munda.—♀.—Black, opaque; head and thorax strongly and confluently, face finely, punctured, clothed with pale ochraceous pubescence; sides of face, anterior and posterior orbits, clypeus, labrum, mandibles except tips, antennæ, collar, lateral margin of mesothorax, scutellums, tubercles, large mark on pleura, tegulæ and legs, ferruginous; second joint of flagellum a little shorter than third; scutellum subbilobate, not very prominent; wings fuscous, pale at base and before apex, costal vein and stigma fulvous; posterior femora and tibiæ black behind; abdomen smooth and shining, first segment entirely ferruginous except a black dot on each side near base; segments 2—5 white, the second narrowly fulvous at apex, the third and fourth narrowly black at apex, and the fourth and fifth narrowly black at base; venter ferruginous, immaculate. Length .45 inch.

Hab.—Colorado, (Ridings). One specimen.

Nomada dilucida.—♀.—Ferruginous, head and thorax strongly and confluently punctured, spot on each side of the face, large spot behind eyes, collar, lateral anterior corners of mesothorax, band at base of scutellum, tubercles and two large marks on metathorax, yellow; spot between antennæ, dot on each side of clypeus, posterior margin of head, sides of prothorax, sutures of thorax, sides of metathorax and stripe on middle, black; second joint of flagellum a little shorter than third; scutellum depressed, slightly impressed medially; tegulæ smooth and shining; wings subhyaline, fuscous on apical margin; anterior tibiæ in front and spot at base and tip of posterior tibiæ yellowish; posterior femora black behind; abdomen smooth and shining, yellow above, basal half of first and apical margin of segments 1—4, fuscous; venter ferruginous, banded with yellow. Length .45 inch.

Hab.—Colorado, (Morrison). One specimen.

Nomada libata.—♀.—Ferruginous, opaque; head and thorax very densely and confluently punctured; tips of mandibles, dot on each side of clypeus, spot behind each antenna, confluent with a spot enclosing the ocelli, a stripe on middle of mesothorax dilated anteriorly and posteriorly and interrupted before middle, broad stripe on middle of metathorax, dot on sides of prothorax and spot above middle coxæ, black; apex of flagellum fuscous, second joint slightly shorter than third; scutellum subbilobate; tegulæ opaque and coarsely punctured; wings faintly tinged with fuscous, apical margin fuscous; abdomen opaque, minutely punctured, a large round spot on sides of second segment, a band on third and fourth and the fifth segment entirely, pale yellow; venter ferruginous, immaculate. Length .45 inch.

♂.—Head yellow; a dot on each side of clypeus, tips of mandibles, vertex and occiput, black; antennæ ferruginous, more or less black or fuscous behind and at tip, third joint much shorter than fourth; thorax ferruginous; mesothorax black with broad lateral margin and narrow stripe on each side of middle ferruginous, sometimes ferruginous with a broad median black stripe dilated posteriorly; scutellum more strongly bilobed than in ♀; postscutellum

yellowish; disk and lateral margin of metathorax and spot on each side of prothorax black; wings hyaline, narrowly fuscous on apical margin; abdomen yellow above, the apical margin of the segments ferruginous; first segment ferruginous with a narrow interrupted yellow band, more or less indented anteriorly and posteriorly. Length .40 inch.

Hab.—Colorado, (Ridings). Four specimens.

Nomada parata.—♀.—Ferruginous, opaque; head and thorax strongly punctured, densely and confluently so on mesothorax; two spots behind antennæ, line connecting ocelli, posterior margin of cheeks, narrow stripe on disk of mesothorax ending in a spot on anterior and posterior margins, sutures of pleura narrowly, spot on each side of prothorax and broad stripe on middle of metathorax, black; flagellum dusky toward apex, second joint shorter than third; scutellum strongly bilobate, shining, sparsely punctured; tegulæ polished with a few scattered punctures; wings subhyaline, narrowly fuscous on apical margin; femora and tibiæ more or less black behind; abdomen opaque, densely and minutely punctured, ferruginous, basal half of first segment black, a small yellow spot on each side of middle, segments 2—4 each with a very broad yellowish-white band, those on two and three slightly indented on each side posteriorly, fifth segment entirely yellowish-white; venter immaculate. Length .45 inch.

Hab.—Colorado, (Ridings). One specimen. This and the preceding species are closely allied, but may be easily separated by the tegulæ, which in *libata* is larger, coarsely sculptured and opaque.

Nomada pacata.—♀.—Ferruginous, opaque; head and thorax strongly and confluently punctured, the face finely punctured; a spot or line on lower anterior orbits, two spots at base of metathorax, sometimes wanting, and occasionally two spots on pleura, yellow; dot on each side of clypeus, tips of mandibles, two spots behind antennæ sometimes confluent with spot enclosing ocelli, posterior margin of cheeks, collar, sutures of the thorax broadly, a stripe on middle of mesothorax, sometimes a stripe on each side, pleura beneath, and broad stripe on middle of metathorax, black; antennæ robust, scape narrowed at base, third joint short, rather more than one-half the length of third; scutellum prominently bilobate, shining, sparsely punctured; tegulæ pale ferruginous, shining; wings dusky at tips, with the usual pale spot before the darker apical margin; legs ferruginous, with the coxæ, femora and tibiæ more or less black behind; abdomen varied with ferruginous, shining, a yellow band on segments 1—5, all more or less interrupted in middle, that on first segment narrow and undulate anteriorly, sometimes subobsolete, that on second segment broad laterally and narrowed within, all slightly indented on each side posteriorly, those on fourth and fifth sometimes enclosing a fuscous spot; venter ferruginous, sometimes spotted with yellow at apex. Length .32—.35 inch.

Hab.—Colorado, (Ridings). Three specimens.

Nomada Crotchii.—♀.—Head opaque, black, thickly clothed with a short pale pubescence, lower corners of face, anterior margin of clypeus, labrum, base of mandibles and spot at summit of each eye, whitish; anterior and posterior orbits obscurely ferruginous; antennæ fulvo-testaceous beneath, third joint a little shorter than fourth, both together being longer than scape

which is narrowed at base; thorax densely punctured, dull ferruginous, the sides and metathorax thickly clothed with pale pubescence, the sutures of thorax, stripe on middle of mesothorax, pleura beneath and most of metathorax black; dot on each side of collar, spot on each side before scutellum, two spots on postscutellum, spot on each side of metathorax nearly obscured by pubescence, tubercles and an obscure spot on pleura, whitish; scutellum subbilobate, not very prominent; wings narrowly fuscous on apical margin; legs ferruginous, the coxæ, femora and tibiæ behind, and the tarsi more or less black; knees, tips of tibiæ and line or spots on four posterior tarsi white; abdomen oblong, shining, ferruginous, varied with black at base of the segments, segments 1—5 each with a white band dilated laterally and narrowed medially, enclosing on each side a small ferruginous or fuscous spot, the band on second segment suddenly dilated on the sides; venter white varied at base with dull ferruginous. Length .40 inch.

Hab.—Fort Tejon, California, (Crotch). One specimen.

Nomada crudelis.—♀.—Large, robust, opaque sanguineo-ferruginous; tips of mandibles, dot on each side of clypeus, two spots behind antennæ, line connecting ocelli, flagellum, sutures of thorax laterally and beneath, three obscure stripes on mesothorax and middle of metathorax, black; third joint of antennæ a little more than one-half the length of fourth; mesothorax coarsely and confluently punctured; scutellum prominently bilobed; wings uniformly fuscous; basal half of first abdominal segment black. Length .60 inch.

Hab.—Georgia, (Morrison). One specimen. This and *grandis* Cress., are our largest species.

Nomada melliventris.—♂.—Head and thorax black, opaque, densely punctured, thickly clothed with a pale pubescence; lower corners of face, clypeus, labrum, and mandibles except tips yellow; antennæ black, ferruginous beneath, third joint one-third the length of fourth; thorax immaculate; scutellum not at all prominent; tegulæ yellowish; wings hyaline, dusky at tips; legs pale ferruginous, coxæ, trochanters and femora beneath, black; abdomen yellowish-ferruginous, subsericeous, two spots at base of first segment and sometimes a dot on each extreme side of second, black; in one specimen the second segment has an obscure yellowish spot on each side; venter immaculate, polished. Length .27 inch.

Hab.—California, (H. Edwards). Two specimens.

Osiris mexicanus.—♀.—Black, smooth and polished; orbits, clypeus, spot above, collar, scutellum, spot on each side at base, large mark on basal middle of metathorax, tubercles and tegulæ, pale yellow; antennæ dull testaceous, fuscous at tips and behind; collar bilobate; wings fuscous, with a strong æneous reflection, stigma yellow; legs black or brown, clothed with a pale silky pile, anterior pair in front, pale; abdomen polished, pale yellow, the apical margin of the segments broadly black; venter black, the long apical process yellowish. Length .40 inch.

♂.—Pale greenish-yellow, flagellum pale fulvous; a broad blackish stripe on each side of mesothorax connected anteriorly by a transverse band; anterior margin of pleura narrowly black; wings yellowish hyaline, faintly dusky; legs pale yellow, the four posterior trochanters and femora fuscous

beneath; abdomen above marked as in ♀; venter banded with fuscous and yellow. Length .35 inch.

Hab.—Mexico, (Sumichrast). Three specimens.

Osiris marginatus.—♂ ♀.—Pale yellow, smooth and polished; flagellum pale fulvous, fuscous above and at tip; mesothorax greenish-fuscous; collar strongly bilobate; wings yellowish-hyaline, faintly dusky at tips; legs immaculate; abdominal segments above broadly margined at apex with black, those on the apical segments of the male dilated in the middle; venter faintly banded with fuscous. Length .30—.35 inch.

Hab.—Mexico, (Sumichrast). Two specimens.

Phileremus americanus.—♂ ♀.—Form robust, black, finely punctured; middle of face, margins of the thorax above, two short lines on anterior middle of mesothorax, line encircling the scutellum and tubercles, and sides of metathorax, clothed with short cinereous pubescence; scutellum bilobate, the lateral teeth short and blunt; tegulæ dull testaceous; wings faintly dusky at tips; knees, tips of tibiæ and the tarsi ferruginous; abdomen short, convex and nearly globose ♂, longer in ♀; a large lunate patch on each side of first segment broad and confluent at base, and a band on apex of the three or four following segments, interrupted in the middle on second segment, composed of short appressed cinereous scale-like pubescence; venter brown, pale at tip. Length .30 inch.

Hab.—Canada, (Saunders); Colorado, (Morrison). Two specimens. This and the next species have much the appearance of *Epeolus compactus* described below.

Phileremus montanus.—♂.—Form short, robust, compact, black; face, anterior margin of mesothorax, posterior margin of scutellum, postscutellum, sides of metathorax, and patch beneath tegulæ, clothed with a dense cinereous pubescence; antennæ short, entirely black; mesothorax finely punctured, shining, with several longitudinal impressed lines in front; scutellum very slightly impressed medially; tegulæ dull testaceous; legs robust, clothed with a pale subsericeous pile, tarsi pale testaceous at tips; abdomen short, convex, subglobose, a large lunate mark on each side of first segment broadly confluent at base, a band on apex of second segment interrupted on disk, four spots on third segment, those on the sides small, and two spots on apical middle of third and fourth segments, all composed of short appressed cinereous scale-like pubescence. Length .25 inch.

Hab.—Nevada, (H. Edwards). One specimen.

Phileremus fulviventris.—♂.—Black, opaque, finely punctured, clothed with a short, pale pubescence, most dense on the face, sides of thorax, around scutellum and on metathorax; mesothorax rather broadly and deeply impressed on anterior middle; scutellum obtusely bilobate; tegulæ and the four anterior legs in front more or less ferruginous; wings fuscous, with a pale spot before apex; abdomen opaque, dull fulvo-ferruginous, black at extreme base and apex, apical margin of the segments with a narrow line of short whitish pubescence, dilated on each side of the disk on segments 3—5. Length .30 inch.

Hab.—California, (Henry Edwards). One specimen.

Philoremus? pulchellus.—♀.—Black, opaque, densely punctured; head broader than thorax; face, sides of occiput, margin of thorax above, sides of metathorax and large patch beneath wings clothed with short appressed white scale-like pubescence; mandibles, tegulæ and tubercles, ferruginous; flagellum brown; wings hyaline, faintly dusky at tips, marginal cell as long as the two submarginal cells, rounded at tip, second submarginal cell less than half the length of the first, narrowed nearly to a point toward marginal, receiving the second recurrent nervure a little beyond the middle, the first recurrent is received by the first submarginal cell near its apex or junction with the second; legs with short pale glittering hairs, the femora at tips and the tibiæ more or less varied with ferruginous; tibiæ spinulose on outer edge; abdomen ovate, very densely and confluently punctured, opaque, fulvo-ferruginous, the segments above stained with black on the middle, a circular line on each side of first segment, and four equidistant spots at base of segments 2—5 composed of appressed white scales; fifth segment longitudinally carinate on the disk; venter fulvo-ferruginous, spotted laterally with fuscous, apical segment emarginate at tip. Length .20 inch.

? ♂.—Like the ♀ except that the ferruginous color entirely disappears and the head, thorax and abdomen above are yellowish-brown; apical margin of abdominal segments obscurely pale testaceous. Length .23 inch.

Hab.—Colorado, (Ridings). Three specimens. This differs from the preceding species in the neuration of anterior wings, the first and second submarginal cells receiving each a recurrent nervure.

Epeolus distinctus.—♀.—Black; head, thorax, legs and venter with a short sericeo-cinereous pubescence, more obvious in certain lights on sides of face, sides of pleura and of metathorax; upper margin of prothorax, narrow lateral and apical margins of mesothorax, two short lines on anterior middle, entire first segment of abdomen above except base and small slightly transverse spot on disk, and apical margins of segments 2—4, buff, the latter shading into cinereous; fifth segment entirely cinereous in certain lights, the dorsal space very finely punctured; mesothorax and pleura very coarsely punctured; scutellum subbisinuate behind, with very long acute slightly incurved lateral teeth; anterior legs varied with pale ferruginous; wings subhyaline, broadly margined at tip with black; last ventral segment convex, acuminate at tip. Length .50 inch.

♂.—Face, metathorax and pleura densely sericeo-cinereous; labrum, tegulæ, anterior legs and all the tarsi, ferruginous; wings darker; scutellum bilobate, lateral teeth more strongly incurved; apical margin of abdominal segments five and six whitish. Length .45 inch.

Hab.—Georgia, (Ridings). Two specimens. A very distinct species.

Epeolus bardus.—♀.—Black; head short, with brown pubescence, not pale around base of antennæ; labrum, tips of mandibles, base of antennæ, tubercles, tegulæ, scutellar teeth and legs, ferruginous; tibial spurs black; upper margin of prothorax, narrow lateral and posterior margins of mesothorax, two short lines on anterior middle, sides of metathorax, margins of tubercles, first abdominal segment above (except extreme base and small transverse spot on middle connected with base by a narrow line), and apical margins of segments 2—4, not dilated laterally, all buff; wings fuscous, darker

on apical margins; mesothorax and pleura coarsely punctured; scutellar teeth broad and prominent; apical middle of fifth abdominal segment more finely punctured than remainder of the segment; last ventral segment convex and acuminate at tip. Length .45 inch.

Hab.—Texas, (Belfrage). One specimen. In the ornamentation of the abdomen this species strongly resembles *distinctus*, but otherwise they are widely different.

Epeolus zacatecus.—♀.—Black; spot surrounding base of each antenna, line on upper margin of prothorax, line before scutellum, line on postscutellum, patch on each side of metathorax, posterior margin of tubercles, four posterior coxæ and the tibiæ exteriorly, silvery-white; large patch on each side of first segment of abdomen, emarginate within, a small patch on each side of second segment and narrow apical margins of segments 2—4, white, tinged with yellow; a whitish spot on each side of fifth segment; wings tinged with fuscous; lateral teeth of scutellum long and subacute; last ventral segment convex, broadly rounded at tip. Length .60 inch.

Hab.—Mexico, (Sumichrast). One specimen. The pale markings of abdomen are almost white.

Epeolus concavus.—♀.—Large, robust, deep black; head entirely black; posterior margin of prothorax, broad anterior margin of mesothorax as far back as tegulæ, narrow line over tegulæ continued round before scutellum, tubercles and spot behind, broad band beneath scutellum, a large bilobed spot on each side of metathorax, broad band on first abdominal segment more or less interrupted medially by a transverse black mark, and apical margin of second, third and fourth segments, that on second broadly dilated laterally, yellowish-white or pale buff; mesothorax and pleura very densely punctured; lateral teeth of scutellum short and blunt; wings fuscous; apical segment of abdomen sparsely punctured before apex; last ventral segment prolonged beyond dorsal segment, longitudinally concave, the tip produced and slightly incurved. Length .50—.60 inch.

Hab.—New Mexico, (Yarrow); California, (H. Edwards); Georgia, (Ridings); Louisiana, (Dr. Lewis). Five specimens. Readily distinguished by the last ventral segment being produced and concave. Very much like *remigatus* Fab. in ornamentation; but besides the different shape of the last ventral segment, that of the third submarginal cell is also quite different, being, in *remigatus*, much broader at its junction with the marginal cell.

Epeolus robustus.—♀.—Large, robust, black; sides of face, above antennæ and posterior margin of head, fulvous; upper margin of prothorax, broad anterior margin of mesothorax, continued narrowly on the sides and before scutellum, patch beneath tegulæ covering the tubercles, narrow posterior margin of scutellum, postscutellum, triangular patch on each side of metathorax, spot on four posterior coxæ, tibiæ and tarsi exteriorly, first segment of abdomen above, (narrowly interrupted medially and squarely emarginate within, forming a broad transverse black line), broad apical margin of segments 2—4, that

on second segment abruptly and squarely dilated on each side, and that on third segment slightly and acutely dilated on each side, all yellowish; clypeus flattened, shining and sparsely punctured; scutellum rather strongly bilobate, the lateral teeth very small; wings fuliginous, apical margins darker; last ventral segment flattened, with apex broadly rounded and slightly recurved. Length .65 inch.

Hab.—New Mexico, (Yarrow). The single specimen before me has been in alcohol, and the pale markings are obscured; the smooth flattened clypeus and face, not at all prominent between antennæ, and the broad, flattened, recurved last ventral segment, will readily distinguish this fine species.

Epeolus nevadensis.—♀.—Deep opaque black; clypeus and face smooth, polished, sparsely punctured; space between antennæ quite prominent; band above base of antennæ, upper margin of prothorax, margins of mesothorax, broad in front, tubercles, spot beneath tegulæ, posterior margin of scutellum, postscutellum, sublunate mark on each side of metathorax near base, spot on posterior coxæ, femora exteriorly, narrow posterior margin of abdominal segments 1—4, (that on one and two abruptly and squarely dilated on each side, and on first segment continued inwardly and nearly meeting on the disk, leaving a broad black abbreviated band on the disk) all fulvous-yellow; fifth segment shining at base, apex densely punctured and clothed with short dense black pubescence, pale sericeous in certain lights; venter opaque, last segment convex, narrowed gradually to apex which is obtuse; scutellum faintly emarginate behind, lateral teeth obsolete. Length .55 inch.

Hab.—Nevada, (H. Edwards). One specimen. The thorax is marked as in *remigatus*, but the last ventral segment is acuminate at tip, and the face and clypeus are polished.

Epeolus californicus.—♀.—Small, black, almost entirely covered with a bright citron-yellow appressed scale-like pubescence; band on vertex, labrum, mandibles, antennæ, anterior margin of pleura, mesothorax except lateral and posterior margins, and two stripes on middle, band on scutellum, narrow band on first abdominal segment, broader band at base of second, pointed and oblique laterally and narrow basal margin of segments 3—5, slightly dilated on each side on three and four, and in middle on five, all black; scutellum bisinuate, with short broad lateral teeth; last ventral segment convex and broadly rounded at tip. Length .40 inch.

Hab.—California, (H. Edwards). A very distinct species.

Epeolus scelestus.—♀.—Black; patch around base of each antenna, upper margin of prothorax, lateral and apical margins of mesothorax, two short lines in front, posterior margin of scutellum, postscutellum, a spot behind insertion of posterior wings, a spot beneath tegulæ covering tubercles, a spot on each side of first abdominal segment, deeply and squarely emarginate within, the points nearly meeting on the middle, and narrow apical margins of segments 2—4, that on second slightly interrupted medially, all pale buff; third joint of antennæ reddish; mesothorax and pleura densely and confluently punctured; scutellum bisinuate behind, lateral teeth prominent, obtuse;

legs more or less tinged with brown-ferruginous, tibial spurs black; wings hyaline, apical margins dusky; fifth abdominal segment brownish at tip which is not more coarsely sculptured than remainder of the segment; venter nude, densely and finely punctured, apical segment depressed, apex broadly rounded, almost truncate. Length .48 inch.

Hab.—Texas, (Belfrage). Two specimens.

Epeolus totonacus.—♀.—Black; face around base of antennæ, patch behind posterior wings, coxæ more or less and spot on each side of fifth abdominal segment, silvery cinereous; upper margin of prothorax, lateral margin of mesothorax more or less interrupted, two short lines on anterior middle, posterior margin of scutellum, postscutellum, tubercles posteriorly, basal, lateral and apical margins of first segment of abdomen, interrupted medially and rather broad apical margins of segments 2—4, slightly interrupted on second, all bright buff; basal joint of flagellum ferruginous; mesothorax and pleura finely and densely punctured; scutellum subbisinuate behind, with short broad lateral teeth; wings subhyaline; legs black or brown, with cinereous pubescence; last ventral segment rather broadly rounded at tip. Length .40 inch.

Hab.—Mexico, (Sumichrast). Two specimens.

Epeolus texanus.—♂.—Black; face silvery; upper margin of prothorax, lateral and posterior margins of mesothorax, two short stripes on anterior middle, apical margin of scutellum, postscutellum, semicircular line on each side of metathorax, tubercles, large spot beneath tegulæ, coxæ more or less, basal half and broad lateral and apical margins of first abdominal segment, slightly interrupted medially, narrow apical margins of segments 2—6, and a spot on each side of second segment, all white or tinged with buff; vertex and occiput with pale pubescence; mesothorax and pleura densely and confluently punctured; scutellum bisinuate behind, lateral teeth short; legs, except coxæ, ferruginous, tibial spurs black; wings hyaline, dusky at tips; apex of venter sometimes ferruginous, apex of fourth and fifth segments with a fringe of curved black hairs; sometimes the anterior margin is broadly cinereous. Length .45—.55 inch.

Hab.—Texas, (Belfrage). Five specimens.

Epeolus occidentalis.—♀.—Black; patch around base of each antenna, cheeks, upper margin of prothorax, lateral and posterior margins of mesothorax, two short stripes on anterior middle, line at base of scutellum, its posterior margin, postscutellum, metathorax except triangular space at base, tubercles, a large irregular patch beneath tegulæ, coxæ more or less, first abdominal segment except a rather broad band on middle abbreviated laterally, rather broad apical margins of segments 2—4, a triangular spot at sides of second segment confluent with apical band, spot at sides of fifth segment, and apical margin of second and third ventral segments, all white or pale buff; tegulæ and legs ferruginous; wings hyaline, with dusky apical margin; mandibles and third joint of antennæ sometimes ferruginous; vertex, occiput and sides of postscutellum, with long pale pubescence; scutellum strongly bisinuate behind, with stout prominent lateral teeth; mesothorax and pleura very densely punctured; spurs of four posterior tibiæ black; last ventral segment convex, broadly rounded at tip. Length .40—.50 inch.

♂.—Face and pleura beneath silvery; abdominal segments 2—6 with apical whitish band, the lateral spot on second segment sometimes much reduced or wanting; sometimes the mandibles and labrum are more or less ferruginous, and the pleura and metathorax are occasionally entirely whitish or silvery; otherwise like the ♀. Length .40—.45 inch.

Hab.—Colorado, (Ridings). Twenty specimens.

Epeolus tepanecus.—♂.—Deep black; face, oblique mark on each side of metathorax and coxæ silvery-white; posterior margin of prothorax, line over tegulæ, line behind tubercles, angular mark on each side of first abdominal segment, broader laterally and sometimes nearly confluent on the middle posteriorly, and a narrow band on apex of remaining segments slightly interrupted medially, all cinereous, sometimes yellowish-cinereous; a silvery cinereous band on apex of second and third ventral segments; third and fourth ventral segments fringed with long curved black pubescence; mesothorax shining, sparsely punctured; outer edge of tegulæ dull testaceous; wings dark fuscous. Length .55 inch.

Hab.—Mexico, (Sumichrast). Three specimens. This has much the general appearance of *donatus* Smith.

Epeolus mercatus Fabr. Syst. Piez. p. 389.—♀.—Black; face around base of antennæ, upper margin of prothorax, lateral margin of mesothorax, interrupted on each side of tegulæ, two short lines on anterior middle, posterior margin of scutellum, postscutellum, patch on each side of metathorax, posterior margin of tubercles, sublunate mark on each side of pleura, patch between intermediate coxæ, rather narrow basal, lateral and apical margins of first abdominal segment, narrow apical margins of segments 2—4, that on second sometimes narrowly dilated on each side, and sides of fifth segment, all cinereous or pale buff; scape, labrum, mandibles, tegulæ, trochanters, femora beneath, tibiæ and tarsi, ferruginous; mesothorax and pleura densely and confluently punctured; scutellum subbisinuate behind, with short, prominent lateral teeth; wings pale fuliginous; tibial spurs black; last ventral segment very broadly rounded at tip, almost truncate. Length .40 inch.

♂.—Face, thorax beneath, sides of metathorax, coxæ, tibiæ, tarsi and middle of venter silvery; apical margins of abdominal segments five and six almost white; wings paler; labrum, mandibles, scape and femora entirely often obdurated. Length .35—.40 inch.

Hab.—Virginia, Georgia, (Ridings); Texas, (Belfrage). Ten specimens. This is probably the true *mercatus*, although the very short description given by Fabricius will apply quite as well to several other species, not found, however, east of the Mississippi River.

Epeolus lectus.—♀.—Black; face, cheeks, thorax beneath, coxæ, sides of fifth segment of abdomen and venter densely cinereous; upper margin of prothorax, lateral and posterior margins of mesothorax, two lines on anterior middle, scutellum behind, postscutellum, sides of metathorax, basal half and narrow apical margin of first abdominal segment, confluent laterally, narrow apical margins of segments 2—4 and apical margins of ventral segments 2—4, all yellowish-cinereous; base of antennæ more or less, tegulæ and legs, ferruginous; wings hyaline, dusky on apical margins; mesothorax and pleura

coarsely and sparsely punctured; scutellum bilobate, with short prominent lateral teeth; tibial spurs black; abdomen strongly punctured, middle of fifth segment not at all roughened; last ventral segment tinged with ferruginous, convex and rather broadly rounded at tip. Length .40 inch.

Hab.—Kansas, (Dr. Wilson). One specimen.

Epeolus agnatus.—♂.—Small, black; face and clypeus clothed with a dense appressed silvery pubescence, on cheeks and occiput the pubescence is more sparse; thorax beneath, upper margin of prothorax, lateral and posterior margins of mesothorax, two lines on anterior middle, posterior margin of scutellum, sides of metathorax, basal and apical margins of first abdominal segment confluent laterally, narrow apical margins of segments 2—6 above and two and three beneath, cinereous; remainder of segments five and six above and beneath brown; basal joint of flagellum, tegulæ and legs more or less yellowish-ferruginous, tibial spurs yellowish; mesothorax, scutellum and pleura coarsely not densely punctured, abdomen strongly punctured; scutellum bilobate, with broad prominent lateral teeth; wings hyaline, fuscous at tips. Length .40 inch.

Hab.—Dakota Territory, (Ulke). This may be the ♂ of *lectus*, although the tibial spurs are pale; the thorax and abdomen are sculptured much alike.

Epeolus compactus.—♀.—Small, compact; black; face around base of antennæ, upper margin of prothorax, lateral and apical margins of mesothorax, one or two spots on anterior middle, broad apical margin of scutellum, postscutellum, sides of metathorax, large spot beneath tegulæ, pleura beneath, coxæ, basal half and broad lateral and apical margins of first abdominal segment, broad apical margins of segments 2—4, dilated laterally and slightly interrupted medially, base of fifth segment, and apical margins of ventral segments 1—4, all more or less whitish or pale buff; tegulæ, tubercles and legs ferruginous; mandibles, labrum and base of antennæ sometimes more or less ferruginous: vertex and occiput with long pale pubescence; mesothorax and pleura densely and confluently punctured; scutellum subbisinuate behind, lateral teeth short, obtuse; *tibial spurs ferruginous;* last ventral segment subconvex, broadly rounded at tip; wings hyaline, dusky at tips; abdomen short, robust. Length .35 inch.

♂.—More compact, with abdomen almost globose; markings the same as ♀ except the fifth and sixth segments are broadly whitish at tip; sometimes the second segment has a more or less distinct whitish lateral spot. Length .25—.35 inch.

Hab.—Texas, (Belfrage); Colorado, (Ridings, Morrison). Fourteen specimens. Easily distinguished by the short compact form, and by the ferruginous legs having concolorous tibial spurs.

Epeolus aztecus.—♀.—Black; face around base of antennæ, and sides of fifth segment of abdomen cinereous; upper margin of prothorax, lateral and posterior margins of mesothorax, posterior margin of scutellum, postscutellum, patch on each side of metathorax behind posterior wings, posterior margin of tubercles, oblique line on each side of pleura, large spot on each side of

first segment of abdomen, obtusely emarginate within and nearly meeting on apical middle, and narrow uninterrupted apical margins of segments 2—4, pale buff; basal joint of flagellum ferruginous; mesothorax and pleura finely and densely punctured; scutellum subbisinuate behind, with short lateral teeth; wings pale fuscous; legs brown, coxæ, tibiæ and tarsi with cinereous pubescence; last ventral segment broadly rounded at tip. Length .45 inch.

Hab.—Mexico, (Sumichrast). Two specimens.

Epeolus mexicanus.—♂ ♀.—Black; face, line on occiput, posterior margin of prothorax, tubercles, line over tegulæ, continued before scutellum, narrow line behind scutellum, sides of metathorax, lunate patch on pleura, large obliquely sublunate patch on each side of first abdominal segment, and rather broad band on apex of segments 2—4 ♀, 2—6 ♂, all covered with a dense appressed yellowish pubescence, sometimes changing in certain lights to silvery-white; the band on prothorax and markings of abdomen varies from pale yellow to dark buff; legs, extreme sides of abdomen, broad on apical segment ♀, and venter clothed with a very short fine cinereous pile; base of flagellum and tegulæ ferruginous; mesothorax closely and confluently punctured; wings varied with dusky, darker on apical margin, yellowish at base; tibiæ and tarsi often more or less varied with ferruginous; apical ventral segment of ♀ convex and broadly rounded at tip; ♂ with a band of cinereous pubescence on ventral segments two and three, and fringe of long yellow pubescence on four and five. Length .35—.45 inch.

Hab.—Mexico, (Sumichrast). Sixteen specimens. Resembles *fumipennis* Say, but readily distinguished by the obliquely sublunate pubescent patch on each side of first abdominal segment and the bands on remaining segments except the last; *fumipennis* has a transverse sublunate mark on each side of the first segment and a band only on the second, and the scutellum and legs are always ferruginous.

Epeolus glabratus.—♂.—Shining black; vertex, mesothorax, scutellum and pleura coarsely and sparsely punctured; tips of mandibles, labrum, three or four basal joints of antennæ, anterior lateral corners of mesothorax, tubercles, tegulæ, scutellum, legs and two basal segments of abdomen except apical margins, ferruginous; face, thorax beneath, posterior margin of scutellum and sides of metathorax densely silvery; upper margin of prothorax yellowish; scutellum strongly emarginate medially, the lateral teeth broad, acute and prominent; abdomen finely punctured, smooth and shining, nude, except a patch of pale pubescence at base of first segment and a narrow submarginal band, (broader laterally and narrowed and interrupted on middle) on all the segments except the last; ventral segments two and three with apical margin whitish and four and five with an apical fringe of long curved yellowish pubescence; wings fuliginous, darker at apex. Length .35 inch.

Hab.—Georgia, (Morrison). One specimen. This is congeneric with what I take to be the *zonatus* of Smith, having the abdomen smooth and shining, the form shorter and more robust, etc. This however differs from that species by the coarse sculpturing of the thorax and the deeply emarginate scutellum.

Crocisa? lata.— ♂.—Form short, broad, very robust, black, finely punctured; head shining, sides of the face, clypeus, cheeks and occiput clothed with rather long white pubescence; antennæ obscure testaceous at tip and beneath; mesothorax nude between the wings, subopaque, finely carinate on lateral margin and with a longitudinal impressed line on the disk and another less deep on each side; thorax in front, at sides and behind clothed with long whitish pubescence; a patch on each side of mesothorax anteriorly, a tuft on each side behind tegulæ, a patch behind scutellum and the anterior margin of pleura clothed with black pubescence; scutellum subbilobate, broadly depressed on disk; tegulæ pale testaceous; wings tinged with yellowish fuscous, a dark streak at tip of marginal cell, which is elongate, lanceolate, the tip rounded and extending beyond the third submarginal cell, second submarginal cell narrow, obliquely subquadrate, the first recurrent nervure uniting with the second transverse cubital nervure, third submarginal about twice the breadth of the second, the apical nervure obtusely angular, receiving the second recurrent nervure at about the middle; legs clothed with black pubescence, a patch on coxæ and on base and apex of tibiæ above of white pubescence, the femora beneath shining and fringed with black pubescence, posterior legs robust; abdomen short, broad, convex, opaque, a broad transverse spot on each side of first segment, and a large subangular mark, broadly dilated laterally, on each side of segments 2—5, of dense appressed white pubescence. Length .40 inch.

Hab.—Texas, (Belfrage). One specimen.

Melecta californica.— ♂ ♀.—Black; head and thorax thickly clothed with cinereous pubescence; a slight tuft on each side of face, two tufts on anterior margin of mesothorax, a tuft on each side behind tubercles, and the pleura beneath, of black pubescence; antennæ very robust, the flagellum being of uniform thickness; disk of mesothorax and of scutellum nude, shining, sparsely punctured, the lobes of scutellum acute at tip; tegulæ obscurely testaceous; wings broadly fuscous at tip, generally the apical cells are more or less spotted with fuscous; femora fringed behind with a long white pubescence, the tibiæ covered above with a dense white pile, with a black or brown patch at base and near apex of anterior and posterior pairs; abdomen opaque, a broad band, interrupted medially, dilated laterally and subsinuate on each side anteriorly, composed of dense appressed white pubescence, on all the segments except the last. Length .35—.40 inch.

Hab.—California, (H. Edwards, Behrens). Ten specimens.

Melecta pacifica.— ♂.—Black; head clothed with long black pubescence, that about base of antennæ and on occiput mixed with pale; clypeus nude, shining and margined at tip; antennæ subrobust, scape clothed with pale pubescence; mesothorax, scutellum and a patch before tegulæ, clothed with long dense ochraceous or pale ochraceous pubescence, elsewhere it is black; scutellum with a short acute spine on each side, hidden by the pubescence; wings more or less tinged with fuscous, sometimes only on apical margin; legs entirely black; abdomen shining, with a bluish or purplish iridescence in certain lights, clothed with black pubescence, with a few pale hairs intermixed, basal segment with long pale pubescence; venter piceous. Length .50 inch.

Hab.—California, (H. Edwards). Two specimens. Allied to *tho-*

racica Cress., which, however, has fulvous pubescence on thorax and on first abdominal segment above, and fuscous wings.

Melecta Edwardsii.—♂.—Robust, black; head clothed with long black pubescence, mixed with pale on occiput; antennæ about as long as head and thorax, rather slender, flagellum brownish beneath; thorax above and anterior margin of pleura clothed with a long dense pale ochraceous pubescence, elsewhere it is black; scutellum with a long acute spine on each side; wings faintly dusky on apical margin; legs entirely black, at base of outer spur on posterior tibiæ a short subacute tooth; abdomen short-ovate, convex, shining, clothed with short black pubescence; venter shining. Length .50 inch.

Hab.—California, (H. Edwards). One specimen. Rather more robust than *pacifica* and distinguished by the longer antennæ, by the long sharp spines on scutellum, and by the anterior margin of the pleura being clothed with pale ochraceous pubescence as on thorax above.

Stelis australis.—♀.—Black, strongly punctured, confluently on head and thorax and sparsely on occiput and abdomen; face and sides of thorax clothed with a rather dense pale pubescence; anterior orbits, dot above summit of eyes, mandibles, scape beneath, line on lateral margin of mesothorax, slightly broader and arcuated anteriorly, sides of scutellum broadly, tegulæ, tubercles, and a broad fascia on each side of abdominal segments 1—5, all sanguineous; tubercles flat, the anterior edge straight and slightly reflexed; scutellum truncate behind; wings smoky-hyaline, much darker in marginal cell and apical margin; second recurrent nervure passing beyond tip of second submarginal cell; legs short robust, clothed with short pale pubescence, knees, tibiæ and tarsi pale ferruginous, posterior tibiæ with an outer darker line; abdomen short, robust, convex, shining, apex more closely punctured, rounded; venter sparsely pubescent. Length .40 inch.

Hab.—Georgia, (Morrison). One specimen. This fine species has much the appearance of an *Anthidium*, but the venter is without a scopa.

Stelis laticincta.—♀.—Black; head and thorax closely and strongly punctured; broad anterior orbits, dot on each side of clypeus, interrupted line behind eyes, broad transverse line on occiput, line on lateral margin of mesothorax curved anteriorly, broad line on posterior margin of scutellum, tubercles, large indented spot on pleura anteriorly, spot beneath posterior wings, knees, and line on anterior tibiæ yellow; tegulæ brown, broadly yellow anteriorly; wings tinged with fuscous, darker along costa, second recurrent nervure uniting with the third transverse cubital nervure; abdomen convex, shining, sparsely punctured, a broad continuous fulvous yellow band on middle of segments 1—5. Length .32 inch.

Hab.—California, (H. Edwards). One specimen.

Stelis? nitida.—♀.—Black, shining, sparsely and rather finely punctured, clothed with erect pale glittering pubescence; face finely and closely punctured; head as wide as thorax, transverse; mandibles rather broad at tip, tridentate; ocelli placed in a triangle; antennæ filiform, scape cylindrical;

thorax broad, scutellum broadly rounded behind, depressed on the disk; pleura prominent on the sides, closely punctured; tegulæ polished; wings tinged with fuscous toward apex, marginal cell long, lanceolate, pointed at tip, second submarginal cell a little longer and larger than the first, narrowed toward the marginal, receiving the first recurrent nervure near the base and the second near the tip; legs very thinly pubescent, tibiæ acute at tip, basal joint of the tarsi as long as the remaining joints together, longer on posterior legs; abdomen ovate, convex, polished, finely and sparsely punctured, with pale pubescence at sides and black at tip; a narrow white band on middle of segments 1—5, interrupted medially on the first, and more or less sinuate posteriorly on the other segments; apical segment broad, depressed and roughly sculptured; venter flat, nude, minutely punctured, shining, the segments brownish at tip; in some specimens the white bands on segments 2—4 are slightly interrupted on disk, and that on five abbreviated laterally. Length .30—.40 inch.

Hab.—Canada, (Saunders); New York, (Comstock). Three specimens.

Stelis? subemarginata.—♀.—Same form and color as *nitida*, subopaque, densely punctured, thinly clothed with pale pubescence, rather dense on face and sides of thorax; scutellum flat, slightly depressed on disk; wings as in *nitida*, except that the second submarginal cell is much longer and larger than the first, and receives the first recurrent nervure further from the base and the second recurrent nearer the tip; abdomen oblong-ovate, convex, shining, sparsely and finely punctured at base and more closely and strongly toward apex; segments 1—5 each with a narrow white band on the middle, slightly interrupted on the disk and broadly subemarginate on the sides posteriorly, apical segment flattened, rounded at tip, the last ventral being slightly longer; venter opaque, nude. Length .35 inch.

Hab.—Colorado, (Ridings). Two specimens. Closely allied and congeneric with *nitida*, but differing by the more dense punctation of the head and thorax, and by the form of the abdominal fasciæ. A specimen from Illinois, probably only a variety, differs chiefly by the darker wings and by the second recurrent nervure uniting with the third transverse cubital nervure.

Stelis? subcærulea.—♂.—Robust, blue-black, shining, head and thorax strongly and sparsely punctured, rather thickly clothed with black pubescence, slightly mixed with pale on thorax above, while on the face it is dense and white, with a slight admixture of black; mesothorax with a slightly impressed longitudinal line on the disk and a short one on each side; pleura closely punctured; wings dusky, neuration as in *nitida*; middle tibiæ bispinose at tip above; abdomen short, convex, almost globose, apex recurved, minutely punctured, polished, a narrow white band on segments 1—4, very slightly interrupted on disk, that on fourth segment attenuated laterally and broadly subemarginate on each side of the middle; on the fifth segment two approximate transverse white spots. Length .32 inch.

Hab.—California, (H. Edwards). One specimen. This is congeneric with *elegans* Cress., also found in California, but is larger, and much less densely punctured.

Stelis? monticola.—♀.—Robust, black, sparsely punctured, shining, head and thorax rather thinly clothed with a pale pubescence, which is thick on the face; mesothorax longitudinally impressed on the disk; apex of scutellum depressed; middle tibiæ prominently bispinose at tip above; wings as in *subcærulea;* abdomen short, subglobose, shining; a narrow white band on segments 1—4, very slightly interrupted on the disk and broadly subemarginate on the sides posteriorly; fifth segment with two approximate transverse white spots. Length .30 inch.

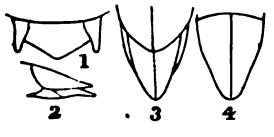
Hab.—Colorado, (Ridings). One specimen. Very much like *subcærulea,* but without any of the blue color so conspicuous in that species.

Cœlioxoides (n. g.) **punctipennis.**—♀.—Black, shining; head as wide as thorax, with coarse sparse punctures, vertex grooved on each side behind antennæ; eyes large, elongate, nude; ocelli placed in a curved line; face short, clypeus truncate at tip, prominent; labrum large, quadrate; mandibles acute at tip, cheeks flat, carinate on posterior margin; face and clypeus except a transverse black mark on middle, line on anterior orbits curving inward behind antennæ, and line on posterior orbits composed of dense appressed silvery white pubescence; antennæ slender, filiform, second and third joints dull ferruginous; mesothorax deeply impressed on the disk and on each side, and with scattered large deep punctures, scutellum large, square, and perfectly flat, opaque black, with a small obtuse black tubercle on each side at base; pleura convex and coarsely punctured on the sides, flat and smooth beneath; a narrow line on posterior margin of prothorax, line on middle of mesothorax another over tegulæ, spot on each side of scutellum and line at tip, spots on pleura, and spot on each side of metathorax at extreme tip, over posterior coxæ, composed of short dense snow white pubescence; pleura tinged with ferruginous beneath; tegulæ dull testaceous: wings

fuscous, with a purplish reflection, a subhyaline band before apex and a round hyaline spot at tip of marginal cell; neuration as in accompanying cut; legs robust, dull ferruginous, varied with fuscous and with patches of short dense white pubescence; posterior trochanters obtusely lobed beneath, tibiæ short, rather suddenly narrowed at base, the two posterior pair acute at tip, spurs short; tarsi slender, the basal joint long, ungues robust, simple; abdomen narrow, acutely conical, elevated and recurved at tip, the last ventral segment prolonged much as in *Osiris;* dorsal surface smooth, impunctured, depressed at base, polished and convex at the acutely pointed tip, segments 1—4 narrowly fringed at apex with short snow-white pubescence; venter convex, shining, varied with ferruginous, entirely nude except a patch of short dense black pubescence on first segment and two spots of the same on apical middle of second and third segments. Length of head and thorax .22 inch; of abdomen .30 inch.

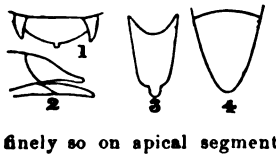
Hab.—Mexico, (Sumichrast). Two specimens. This curious insect has at first sight much the form of a narrow attenuated *Calioxys,* but is widely distinct, as will appear from the characters given above. The apex of the abdomen is stylated as in *Osiris* ♀, but the neuration of anterior wings is different from anything known to me.

Cœlioxys tolteca.—♀.—Black, smooth and shining; middle of face longitudinally prominent, the ocelli place in moderately deep foveæ; eyes with very short hairs; sides of face and cheeks clothed with a very short dense pale ochraceous pile; occiput fringed with pale pubescence; clypeus deeply punctured; mandibles ferruginous; mesothorax with a few scattered deep punctures on the sides and behind; scutellum (fig. 1) large, extending over the metathorax, flat at base, angular and recurved at tip, the sides with a few deep punctures, the lateral teeth long, broad at base, subacute and twisted at tip; a line on anterior margin of thorax continued beneath, spot before tegulæ, two spots at base of scutellum, and line on posterior margin of pleura, composed of dense appressed whitish pubescence, the sides of the metathorax have a rather long, thin pale pubescence; in front of tegulæ a sharp transverse carina; tubercles, tegulæ and legs ferruginous; wings tinged with dusky on apical margin; abdomen smooth and shining, having a few scattered punctures, segments 2—5 have a rather deeply impressed line on each side, and all the segments except the last have an apical fringe of short dense white pubescence, slightly interrupted in the middle; apical segment (fig. 4) rather short, rounded at tip, a sharp longitudinal central carina, on each side of which at tip there is a deep oblique groove; venter ferruginous laterally and at tip, sparsely and strongly punctured, last segment short, broad, extending a little beyond the last dorsal segment, rounded at tip, (fig. 2, apex of abdomen in profile; fig. 3, apex from beneath). Length .40 inch.



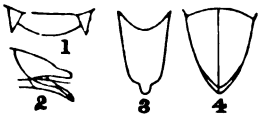
Hab.—Mexico, (Sumichrast). One specimen.

Cœlioxys aperta.—♀.—Black, opaque, head and thorax densely and confluently punctured; face, vertex and cheeks clothed with a dense white pubescence, that on middle of vertex radiating around the lower ocellus; top of head uniformly punctured; pubescence on eyes short; mesothorax above clothed with short sparse pale pubescence; anterior margin of thorax, spot on anterior middle of mesothorax, line over tegulæ, and line before scutellum, of short appressed white pubescence; sides of thorax, metathorax and postscutellum thickly clothed with long pale pubescence; scutellum (fig. 1) broadly rounded behind, with a short obtuse tooth at tip, lateral teeth acute and slightly bent inwardly; immediately before the tegulæ a sharply defined acute transverse carina; wings tinged with fuliginous at tip; tegulæ and legs black, the latter with short whitish pubescence, tibial spurs ferruginous; abdomen shining toward tip deeply punctured, more densely so at base, finely so on apical segment; sides of first segment with rather long pale pubescence, apical margin of segments 1—5 with a narrow fringe of white pubescence; second and third segments with a transverse deeply impressed line across the middle; apical segment (fig. 4) broad, short, narrowed gradually to tip which is rather broadly rounded and depressed; ventral segments 2—5 each with an apical fringe of dense white pubescence; apical segment (fig. 3) broad, rather short, extending beyond the upper segment and having a short appendage at tip, (fig. 2, apex in profile). Length .60 inch.



Hab.—Colorado, (Morrison). One specimen.

Cœlioxys deplanata.—♀.—Robust, black, opaque, head and thorax coarsely and confluently punctured, a small smooth impunctured space on each side of ocelli; lower portion of face and the clypeus covered with a very short appressed pale ochraceous pubescence scarcely hiding the sculpturing, but longer on tip of clypeus; on upper part of face the pubescence is longer, radiating around the lower ocellus, which is placed in a shallow depression; cheeks thinly covered with short white pubescence, the posterior margin of occiput fringed with pale ochraceous hairs; eyes with very short pubescence; line on anterior margin of thorax continued beneath and dilated into two spots on anterior middle of mesothorax, a line over tegulæ and line at base of scutellum and behind, composed of short, appressed, pale ochraceous, scale-like pubescence; sides of metathorax with long pale pubescence, on pleura beneath it is short and white; scutellum (fig. 1) broadly rounded behind, lateral teeth large, subacute compressed laterally, directed slightly outwards; immediately in front of tegulæ a thin sharp subsinuate transverse carina; tegulæ testaceous; wings dusky on apical margin; legs pale ferruginous, coxæ black and more or less densely clothed with short white pubescence; abdomen shining, deeply not confluently punctured, basal corners of first segment, and narrow apical margins of segments 1—5 broader laterally, clothed with short dense pale ochraceous scale-like pubescence; second and third segments each with a deeply impressed transverse line on the middle; sides and base of first segment sometimes more or less red; apical segment (fig. 4) finely and densely punctured, opaque, short, broad at base and gradually narrowed to tip which is rounded and margined, a fine central longitudinal carina on the entire length of the segment, on each side of which at the apex the surface is depressed; venter deeply punctured, more or less red at base, a spot on middle of first segment and the apical margin of the segments 2—5 narrowly, of short white pubescence; apical segment (fig. 3) broad, incurved, a little longer than the upper segment, gradually narrowed to the tip which has a short subacute appendage (fig. 2, apex in profile). Length .48 inch.



Hab.—Kansas, Colorado, (Ridings). Three specimens. This is nearly allied to *aperta* in the formation of the apical segments of the abdomen, but otherwise is quite distinct.

Cœlioxys Comstockii.—♀.—Robust, opaque black, coarsely and confluently punctured; vertex, face and clypeus clothed with dense pale ochraceous pubescence, long on vertex and short on base of clypeus; cheeks, thorax beneath and legs with short appressed white pubescence: mandibles piceous; eyes with short pubescence; pro- and metathorax with long pale ochraceous pubescence; scutellum (fig. 1) coarsely sculptured, broadly rounded behind, the lateral teeth long, subacute and slightly incurved; transverse carina before tegulæ not conspicuous, being covered by the pubescence; tegulæ piceous; wings rather broadly fuliginous on apical margin; anterior tibiæ and all the tarsi more or less ferruginous, spines on anterior coxæ very short; abdomen robust, shining, sparsely punctured, more deeply so on basal segment which has a patch of pale ochraceous pubescence on each basal corner; a narrow fringe of pale pubescence on

apical margin of segments 1—5, a deeply impressed transverse line on segments two and three; apical segment (fig. 4) short, broad, suddenly constricted on the sides about half way to tip which is truncate, an obscurely defined longitudinal carina on the disk; venter deeply punctured, shining, middle of first segment and apical margins of 2—5 with a fringe of dense white pubescence; apical segment (fig. 3) longer than the upper, very much incurved, broad, gradually narrowed to the tip before which on each side there is a slight notch, (fig. 2, apex in profile). Length .50 inch.

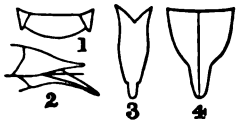
Hab.—New York, (Prof. J. H. Comstock). One specimen.

Cœlioxys chichimeca.—♀.—Rather slender, shining black; face, clypeus and cheeks covered with a short dense white pubescence, longer on vertex and cheeks beneath; anterior orbits on each side of antennæ finely carinate; pubescence on eyes very short; mesothorax margined all around with short dense pale ochraceous pubescence, on the sides of metathorax the pubescence is long and white, and on the pleura short, having a line of dense white pubescence on anterior and posterior margins; mesothorax with large deep not confluent punctures; in front of tegulæ a sharp sinuate transverse carina; scutellum (fig. 1) coarsely and deeply punctured, acutely angular behind, the lateral teeth long and compressed laterally; tegulæ and legs honey-yellow, the latter fringed with snow-white pubescence; wings dusky on apical margin and on upper half of marginal cell; teeth on anterior coxæ very short and blunt, outer tip of tibiæ with two short acute teeth; posterior tarsi more or less black, the basal joint dilated and suddenly constricted at base, the lower edge coarsely serrate; abdomen smooth and polished, with fine scattered punctures, more numerous at base of the segments, an oblique impressed line on each side of segments 2—4, basal margin of the first and apical margin of five basal segments narrowly fringed with dense white pubescence; first segment entirely and sides of second and third more or less, ferruginous; apical segment (fig. 4) finely and somewhat closely punctured, suddenly constricted or pinched before the tip which is obtuse, subcompressed laterally and having a few erect black hairs; venter bright ferruginous, polished, sparsely punctured, apical margin of the segments narrowly fringed with a dense snow-white pubescence; apical segment (fig. 3) black, rather broad, longer than upper segment, and very gradually narrowed to tip which has a subacute spine and having on the sides a fringe of black pubescence, (fig. 2, apex in profile). Length .45 inch.

Hab.—Mexico, (Sumichrast). One specimen.

Cœlioxys lucrosa.—♀.—Black, shining; head and thorax deeply not closely punctured, face, cheeks and sides of thorax clothed with griseous pubescence; eyes with rather long, not very dense hairs; scutellum (fig. 1) coarsely sculptured, broadly rounded behind, lateral teeth short, subacute; transverse carina before tegulæ straight, not very conspicuous; tegulæ black, polished; wings tinged with dusky, darker on apical margin; legs black, with sparse pale pubescence, spurs ferruginous; abdomen smooth and polished, sparsely punctured; sides of segments two and three transversely impressed, triangular patch on lateral apical corners of first segment and narrow fascia on apical

margin of segments 1—5, more or less interrupted on middle, of dense white pubescence; apical segment (fig. 4) more closely punctured, rather suddenly depressed and narrowed to tip which is obtuse, an indistinctly defined central longitudinal carina: venter with large sparse elongate punctures, the segments fringed at apex with short pale pubescence, apical segment (fig. 3) narrow, slightly incurved, longer than upper segment, gradually narrowed to tip, before which on each side there is a slight notch, (fig. 2, apex in profile). Length .53 inch.



Hab.—New York, (Comstock); Colorado, (Morrison). Three specimens.

Cœlioxys floridana.—♂.—Black, shining; head and thorax with large deep punctures, clothed with pale pubescence most dense on face, vertex and sides of thorax; head larger than usual, lower part of cheeks with a broad rather deep groove, their posterior margin carinate; pubescence on eyes short; the usual lines and spots of dense white pubescence on thorax; carina before tegulæ acute and emarginate in middle; scutellum broadly rounded behind, with a short tubercle in middle, lateral teeth long, divergent and acute; tegulæ pale testaceous; wings fuliginous at apex; legs slender, ferruginous, coxæ black, intermediate trochanters elongate subcylindrical when viewed laterally; abdomen shining, sparsely punctured, segments 2—5 each with a deep oblique groove, which on segments four and five have a line of white pubescence; sides of segment one, and apical margin of 1—5 with a fringe of short white pubescence; a short spine on each side of fifth segment; sixth segment deeply grooved at apex, produced into two bifurcate processes, the teeth acute and straight, the lower pair slightly longer than the upper, a short spine on each side at base; venter banded with white pubescence. Length .53 inch.

Hab.—Florida. One specimen.

Cœlioxys coloradensis.—♂.—Black, opaque; head and thorax coarsely confluently punctured, thickly clothed with whitish pubescence, which, on the face is very dense, long and pale ochraceous; eyes densely pubescent; scutellum broadly rounded behind, the lateral teeth long, acute and slightly hooked at tip; tegulæ polished black; wings clear, the apical margin fuliginous; legs black, the femora, especially the two anterior pairs fringed behind with long white pubescence, tibial spurs and tarsi pale ferruginous; abdomen rather closely punctured, a deep transversely impressed line at base of segments 2—5, sides and apical margin of segments 1—5, and basal margin of 4—6 with a fascia of white pubescence; base of first segment thinly clothed with erect pale pubescence; a blunt tooth on each side of fifth segment, and also on the sixth which is produced at apex into two bifurcate processes, the upper teeth short, blunt and slightly divergent, the lower teeth straight, acute and much longer than the upper; venter banded with white pubescence. Length .45 inch.

Hab.—Colorado, (Morrison). One specimen. This and the next species are closely allied, differing chiefly in the armature of the scutellum and apex of abdomen, and in the color of the legs.

Cœlioxys sodalis.—♂.—Very much like *coloradensis*, but differs as follows: head and thorax more densely and less coarsely punctured; lateral teeth of scutellum short and obtuse; legs entirely black, including tibial spurs; abdomen more finely punctured, no spine on sides of fifth segment, that on sides of the sixth long and acute, the teeth on apical processes straight, when viewed from above the upper two are on a line with the lower two. Length .42 inch.

Hab.—New York; Colorado. Three specimens.

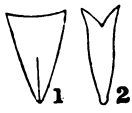
Cœlioxys mexicana.—♀.—Black; head and thorax closely and deeply punctured; face and cheeks with short dense pale ochraceous pubescence, most dense on sides of face; pubescence on eyes very short; anterior margin of mesothorax, spot behind tegulæ, line on base of scutellum and line on postscutellum of short dense appressed pale ochraceous pubescence; two lines of short dense white pubescence on sides of pleura, confluent beneath with a broad central longitudinal stripe on the middle; scutellum (fig. 1) broadly rounded behind, with a well defined central longitudinal carina, lateral teeth long, divergent and compressed laterally; sides of postscutellum and of metathorax with long pale pubescence; tegulæ and legs fulvo-ferruginous; wings dusky, darker on apical margin, coxæ black, trochanters fuscous, the middle pair elongate and subcylindrical when viewed laterally; teeth on anterior coxæ short and acute; abdomen shining, finely and sparsely punctured, a deeply impressed transverse line on sides of segments 2—4, sides of the first and apex of segments 1—5 with a narrow fringe of dense pale pubescence; apical segment (fig. 4) long, gradually narrowed to tip which is rounded, the sides slightly sinuate, an obscurely defined central longitudinal carina; venter banded with white pubescence, the fifth segment acutely angular at tip, the apical segment (fig. 3) longer than the upper, broadly rounded on the sides and then narrowed to apex, before which on each side there is a slight notch, (fig. 2, apex in profile). Length .45 inch.

♂.—Face with dense golden pubescence, pale on tip of clypeus; apex of abdominal segments 2—5 deeply transversely impressed, and lined with white pubescence, the apical margin reflexed and smooth; segments 4—6 with a line of white pubescence at base; sides of fifth segment with a very short blunt tooth; apical segment with an acute tooth on each side, the apex produced into two bifurcate processes, the two upper teeth blunt and divergent, the lower two longer than the upper, subacute and nearly straight; venter banded with white pubescence, sometimes tinged with ferruginous, apical middle of fourth segment with two short acute teeth. Length .45 inch.

Hab.—Mexico, (Sumichrast). Four specimens.

Cœlioxys zapoteca.—♀.—Black; head and thorax with large deep and rather sparse punctures; broad anterior orbits and cheeks clothed with dense silvery-white pubescence, on middle of face and clypeus which is finely sculptured, there is a very fine appressed pale pile and a short scattered erect pubescence; clypeus squarely produced at tip beneath which there is a fringe of dense pale ochraceous pubescence; a curved line of rather long fuscous hairs on vertex beneath posterior ocelli: a short carina between antennæ; pubescence of eyes very short; mandibles ferruginous; sinuate line on anterior

margin of mesothorax, spot behind tegulæ, line at base of scutellum, one on postscutellum and two lines on pleura, of dense white or pale ochraceous pubescence; sides of metathorax with long pale hairs; scutellum much like that of *mexicana* but rather angular behind, longitudinally carinate on disk, the lateral teeth shorter and truncate at tip; tegulæ and legs fulvo-ferruginous; wings dusky, darker on apical margin; middle trochanters elongate and subcylindrical when viewed laterally, spines on anterior coxæ rather long, acute; abdomen smooth and shining, finely and sparsely punctured, finely transversely impressed on each side of second and third segments, basal margin of the first and apical margin of segments 1—5 narrowly fringed with short white pubescence, broadly interrupted on middle of first segment; extreme sides of first and second segments ferruginous; apical segment (fig. 1) gradually narrowed to tip which is depressed and acute; venter ferruginous, banded with white pubescence, strongly and sparsely punctured, fifth segment very finely punctured, elongate, acute at tip; apical segment (fig. 2) longer than the upper, narrow, incurved, gradually narrowed to tip which is subacute; the apex when viewed in profile much as in *mexicana*. Length .45 inch.



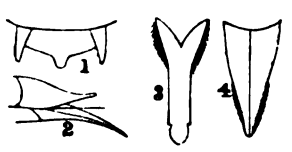
Hab.—Mexico, (Sumichrast). One specimen. Very different from all other species by the squarely produced clypeus.

Cœlioxys azteca.—♀.—Black, smooth and polished; face and cheeks with short pale ochraceous pubescence, most dense on sides of face and cheeks; clypeus deeply emarginate or cleft on the apical middle, giving the apex the appearance of being bituberculate; a curved fringe of dark hairs on vertex; on each side of ocelli a large smooth impunctured space, behind which there are a few large punctures; eyes with short pubescence; mesothorax ferruginous, blackish on anterior middle and behind, the sides with large scattered punctures; anterior margin, spot behind tegulæ, band at base of scutellum and two parallel lines on pleura laterally of short dense pale ochraceous pubescence; sides of metathorax with long pale pubescence; scutellum large, depressed, ferruginous, having a few large punctures, angular behind, the tip rounded and slightly recurved, lateral teeth subacute, slightly divergent, the tip compressed laterally; carina before tegulæ prominent and subsinuate; tegulæ and legs fulvo-ferruginous; wings dusky on apical margin; legs and abdomen as in *zapoteca*, except that the venter has a fine longitudinal carina on the middle, especially on fifth segment, the apical segments are shaped the same in both species. Length .42 inch.

Hab.—Mexico, (Sumichrast). One specimen. The scutellum is shaped much as in *tepaneca*, but the apical process is not so prominent.

Cœlioxys tepaneca.—♀.—Black, smooth and polished: head as described in *zapoteca* except that the pubescence is more dense and longer on vertex, the clypeus with short scattered erect black hairs seen better from a lateral view, the middle with an impressed longitudinal line; top of head smooth, with a few deep punctures on each side of ocelli; a few erect yellowish hairs from beneath apex of clypeus; mesothorax depressed posteriorly with a few punctures on the sides; pleura and metathorax clothed with white pubescence; anterior and lateral margins of mesothorax narrowly, and

a bifurcate line on base of scutellum of dense whitish pubescence; scutellum (fig. 1) smooth and polished, impunctured, large, projecting over the metathorax, depressed on the middle, the tip with a broad, flat obtuse tooth, lateral teeth long, slightly divergent and subacute; tegulæ, the sharp transverse subsinuate carina in front, and the legs, fulvo-ferruginous; wings dusky, broadly fuliginous on apical margin; legs with short white pubescence, posterior femora, tibiæ and tarsi varied with black, middle trochanters elongate, subcylindrical when viewed laterally; abdomen smooth and polished, with scattered punctures; segments 1—5 each with a narrow apical fringe of white pubescence; sides of first segment broadly ferruginous; apical segment (fig. 4) long, finely punctured, gradually narrowed to tip which is slightly turned up, a fine central longitudinal carina, and on each side before apex a short fringe of ochraceous pubescence; venter ferruginous, with scattered deep punctures, a well defined central longitudinal carina on segments 2—5, the fifth segment elongate, acutely conical and fringed at tip with ochraceous pubescence; apical segment (fig. 3) long and narrow, much longer than upper segment, and incurved, sides parallel nearly to apex which is rounded, with a slight notch on each side, the base fringed with pubescence, (fig. 2, apex in profile). Length .50 inch.

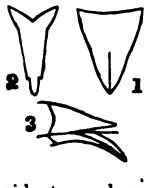


Hab.—Mexico, (Sumichrast). A very distinct species.

Cœlioxys otomita.— ♀.—Black, smooth and polished; head as described in *zapoteca* except that the clypeus is flat, nearly nude, with a fringe of dense pale ochraceous pubescence at tip; eyes with very short pubescence; mesothorax smooth, with deep scattered punctures on the sides; anterior margin of thorax, continued beneath, spot behind tegulæ, and band at base of scutellum, of dense, appressed, pale ochraceous pubescence; scutellum large, projecting over the metathorax, depressed, obtusely angular behind, the tip slightly recurved, lateral teeth slightly divergent, obtuse; metathorax with long pale pubescence; transverse carina in front of tegulæ prominent, subsinuate; tegulæ and legs ferruginous; wings dusky, fuliginous at tip; legs clothed with short white pubescence, posterior tarsi dusky above, spines on anterior coxæ short and acute, middle trochanters elongate, subcylindrical when viewed laterally; abdomen smooth and polished, with a few scattered punctures, basal margin of the first, and apical margin of segments 1—5 with a narrow fringe of white pubescence, extreme sides of first segment red; apical segment rather closely and finely punctured, gradually narrowed to tip, and curved in profile, a longitudinal roughened depression on each side of the middle; venter ferruginous, shining, with large scattered punctures, banded with white pubescence, fifth segment elongate, conical, apical segment much longer than the upper, slender, incurved, gradually narrowed to tip which is rounded, (figure, apex of abdomen in profile). Length .45 inch.

Hab.—Mexico, (Sumichrast). One specimen. The scutellum is formed much like that of *tolteca*, while the apical segments of the abdomen resemble in outline viewed from above, those of *zapoteca*, but in profile are very different.

Cœlioxys totonaca.—♀.—Black; head as in *otomita;* mesothorax shining, with large deep, not close, punctures; anterior margin, continued beneath, spot behind tegulæ, and band at base of scutellum of dense pale ochraceous pubescence; sides of metathorax with long pale hairs; the usual line of white pubescence on posterior margin of pleura parallel with that on anterior margin, and a patch of dense snow-white pubescence between middle coxæ, which are elongate subcylindrical in profile; scutellum with large deep punctures, angular behind, the tip with a short obtuse tooth, lateral teeth long, divergent, and compressed laterally at tip; carina before tubercles prominent, sinuate; tegulæ and legs fulvo-ferruginous; wings dusky on apical margin and on upper half of marginal cell; coxæ blackish, femora and tibiæ with a line of snow-white pubescence; abdomen shining, with scattered punctures, apical margin of segments 1—5 with a narrow fringe of white pubescence, sides of first segment ferruginous; apical segment (fig. 1) longitudinally depressed and roughened on each side towards apex, which is rounded, the sides slightly sinuate, a well defined central longitudinal carina on apical half; venter as in *otomita*, except that the apical segment (fig. 2) is much shorter and broader, a little longer than the upper, slightly incurved, and with the tip suddenly narrowed, (fig. 3, apex in profile). Length .40 inch.



♂.—Face densely clothed with pale ochraceous pubescence, longer on vertex; mandibles ferruginous; lower part of cheeks deeply and broadly grooved, posterior margin carinate; abdomen as described in *mexicana*, except that apical teeth are more acute. Length .35 inch.

Hab.—Mexico, (Sumichrast). Four specimens. The scutellum of this species has much the same form as that of *chichimeca*, except that the apex has a short blunt tooth and the disk has a well defined longitudinal carina.

Cœlioxys germana.—♀.—Rather more robust than *totonaca* and differs only as follows: the pubescence is everywhere snow-white; the face is rather broader; the middle trochanters are not elongate subcylindrical, but shaped like the posterior pair, and the abdomen is without any ferruginous color, the white fascia on dorsal segments are slightly dilated laterally, and the last ventral segment is suddenly constricted nearer to the tip, making the appendage shorter. Length .45 inch.

Hab.—Illinois, (Dr. Samuel Lewis). One specimen.

Osmia mandibularis.—♀.—Steel-blue, shining; head and thorax closely and strongly punctured, clothed with short whitish pubescence, longer and more dense on the face; head very large, subquadrate; clypeus short, anterior margin very uneven and with two short tubercles at tip; mandibles black, with a large knotty process at base above, deeply grooved on the outside and coarsely rugose within, on their face a patch of dense yellowish pubescence; antennæ short, slender, black; tegulæ piceous; wings fuliginous on apical margin, and on upper half of marginal cell; legs slender, black, thinly clothed with griseous pubescence; abdomen shining, finely punctured, clothed at the sides and on lateral apical margin of the segments with whitish pubescence; ventral scopa black. Length .65 inch.

Hab.—Colorado, (Morrison). Remarkable for the large nodose process on mandibles.

Osmia facets.—♀.—Steel-blue, shining; head and thorax closely and strongly punctured, thinly clothed above with pale pubescence, dense on face, cheeks and sides of thorax; head large, subquadrate; anterior margin of clypeus uneven, the apical middle with two short obtuse teeth; mandibles large, broad, foveate at base, and near tip with a patch of short dense yellowish pubescence; antennæ black; mesothorax with a finely impressed longitudinal line anteriorly; tegulæ piceous; wings smoky on apical margin and on upper half of marginal cell; legs black, clothed with pale pubescence; abdomen convex, shining, finely, distinctly and not very closely punctured, sides and lateral apical margin of the segments more or less, fringed with whitish pubescence; ventral scopa black. Length .45 inch.

♂.—Face, thorax and base of abdomen thickly clothed with long pale pubescence; anterior margin of clypeus crenulated medially; wings paler than in ♀; apical margin of sixth abdominal segment reflexed, notched in the middle and subsinuate on each side, apical segment bidentate. Length .35—.40 inch.

Hab.—Can., N. Y., Ga. Eight specimens. This is allied to *chalybea* Smith, in color and sculpture, but is much smaller, with clearer wings, etc.

Osmia abjecta.—♀.—Black, shining; head and thorax finely and closely punctured, clothed rather thickly with pale pubescence, tinged above with dull ochraceous; clypeus with dense fuscous pubescence; flagellum dull testaceous beneath; mesothorax nearly nude, shining, sparsely punctured, a finely impressed longitudinal line on anterior middle and a short elevated line on each side of the disk; basal middle of metathorax smooth and polished; tegulæ rufo-piceous; wings dusky about the middle, second submarginal cell narrowed nearly one-half towards marginal; tarsi dull testaceous; abdomen short, convex, subglobose, shining, delicately punctured, base and sides of first segment, and lateral apical margin of segments 1—3 clothed with short dense pale pubescence; ventral scopa black. Length .30 inch.

Hab.—Colorado, (Ridings). One specimen. The white fasciæ on sides of basal segments of abdomen are very distinct.

Osmia nigrifrons.—♀.—Robust, black, tinged with dark blue or green; head and thorax strongly and densely punctured; head subquadrate, clothed with long black pubescence, dense on the face, sometimes slightly mixed with pale hairs on sides of face and on vertex; anterior margin of clypeus truncate or obtusely emarginate; thorax above clothed with long pale pubescence, slightly mixed with black, on the sides and beneath the pubescence is black; tegulæ shining black; wings dusky on apical margin; legs with black pubescence, slightly mixed with pale on anterior pair; abdomen convex, polished, with very fine punctures and clothed with short black pubescence except at base where it is long and pale; ventral scopa black. Length .45 inch.

Hab.—Colorado, (Morrison). Eight specimens.

Osmia armaticeps.—♀.—Black; head and thorax closely and strongly punctured; head quadrate, clothed above with black pubescence slightly mixed with pale on each side of vertex and on occiput; cheeks broad, sparsely and finely punctured and shining, on each side beneath near base of mandibles a long subacute tooth; face nude; clypeus flat, smooth and polished, a deep fovea on each side near base and the apical middle with two short obtuse teeth; mandibles very long, acute, rugose, having on the outer margin a narrow groove; thorax above clothed with long pale pubescence, slightly mixed with black, on the sides and beneath the pubescence is black; disk of mesothorax sparsely punctured and polished; wings dusky, darker on apical margin; legs clothed with black pubescence; abdomen slightly tinged with blue, shining, delicately punctured except at tip where the punctures are close and rather deep, clothed with short black pubescence, except on first segment where it is long and whitish, slightly mixed with black; ventral scopa black. Length .45 inch.

Hab.—Colorado, (Ridings, Morrison). Three specimens. Easily recognized by the elongate-quadrate head, which is armed on each side beneath with a rather long conspicuous tooth.

Osmia quadriceps.—♀.—Black; head and thorax densely punctured; head quadrate, thinly clothed above with long black pubescence, cheeks broad, flattened, polished and sparsely punctured; face nude; clypeus smooth, polished, concave, deeply impressed on each side, the apex produced, and emarginate or notched in middle; mandibles large, rugose, acute at tip, with a deep groove on outer margin; thorax thickly clothed with long black pubescence, which is sparse on disk above; mesothorax sparsely punctured and polished on posterior middle; wings fuscous, with a subhyaline mark before apex; legs with black pubescence; abdomen rather strongly tinged with blue, finely punctured, shining, the pubescence short and black, except on first segment where it is long; ventral scopa black. Length .50—.60 inch.

Hab.—California, (H. Edwards). Eight specimens. In shape this resembles *armaticeps*, but the head is not armed beneath, and the pubescence is entirely black.

Osmia maura.—♀.—Entirely deep black; head and thorax densely punctured, clothed with black pubescence, which is dense on the face, thorax and sides of abdomen; head subquadrate; apical margin of clypeus broadly emarginate, the lateral angles prominent; disk of thorax almost nude; wings dusky on apical margin; legs with black pubescence; abdomen shining black, delicately punctured; ventral scopa black. Length .46 inch.

Hab.—California, (H. Edwards). One specimen. This is easily distinguished by the body being entirely deep black.

Osmia cobaltina.—♀.—Brilliant deep blue or purple; the head and thorax changing to green, densely punctured, thinly clothed with pubescence, black on head, and pale mixed with black on thorax; clypeus always dark blue, with fuscous pubescence at apex which is truncate; wings dusky; legs green or blue, with short black pubescence; abdomen shining, finely punctured, deep blue, purple or green; ventral scopa black. Length .35—.40 inch.

Hab.—Nevada, California, (H. Edwards, Behrens). Ten specimens. This little species is very brilliant, but variable in color, some specimens being entirely blue, purple or green, as the case may be, and some partake of all three colors.

Osmia coloradensis.—♀.—Black, tinged with blue; head and thorax densely and strongly punctured, rather thickly clothed with pale pubescence; head subquadrate, clypeus subcarinate down the middle, the apical margin coarsely crenulated; mandibles broad; tegulæ piceous; wings dusky; legs slender, black, with short pale pubescence; abdomen strongly tinged with blue, shining, finely punctured, base of first segment with long pale hairs, lateral and apical margins of all the segments with short pale pubescence; ventral scopa white or yellow. Length .35 inch.

Hab.—Colorado, (Ridings, Morrison). Six specimens.

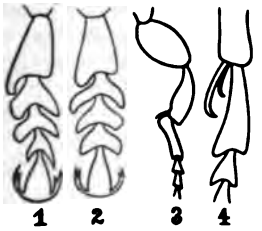
Osmia georgica.—♀.—Black, tinged with blue; head and thorax closely and strongly punctured, face and sides of thorax rather thickly clothed with pale pubescence; clypeus with a prominent central longitudinal carina, produced at apex in form of a tooth; mandibles broad, with a patch of yellow hair near tip, and a large transverse process at base above; mesothorax thinly pubescent, disk sparsely punctured; tegulæ piceous; legs slender, black, with pale glittering hairs, yellow on inside of tibiæ and tarsi; abdomen shining, finely not closely punctured, with a thin whitish pubescence at base and sides; ventral scopa yellowish. Length .35 inch.

Hab.—Georgia, (Morrison). One specimen. The formation of the mandibles resembles that of *mandibularis*, described above, but the basal process is much smaller and when closed forms an arch, interrupted medially, in front of the clypeus.

Osmia azteca.—♀.—Black, closely punctured, entire insect thickly clothed with golden fulvous pubescence, darker on abdomen above and pale on face, sides of thorax and legs; head subquadrate; tegulæ piceous; wings uniformly fuscous; the pubescence on abdomen is dense on apical margin of the segments, especially on the terminal segments; ventral scopa yellow. Length .35 inch.

Hab.—Mexico, (Sumichrast). One specimen.

Osmia abnormis.—♂.—Black, tinged with blue or green; head and thorax densely and finely punctured, opaque, thickly clothed with a long ochraceous pubescence, that on clypeus very dense and pale; antennæ black, reaching to scutellum, apical joint compressed, broadly rounded at tip; tegulæ piceous; wings dusky on apical margin; legs black, clothed with black pubescence, except on anterior pair and tip of middle femora where it is pale; the posterior femora short, swollen, subglobose, (as in fig. 3) the tibiæ short and incrassate; intermediate tarsi (fig. 1) with basal joint dilated, lobed at tip before and fringed behind with long black hairs, second and third joints short and broadly dilated,



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fourth joint much smaller; posterior tarsi (fig. 3) abruptly curved at base, the first joint broad with a rather deep groove on the outside; apical joint of all the tarsi ferruginous, covered with a silvery white pile; abdomen convex, shining, delicately punctured, clothed with short pale pubescence at base, longer and more dense on the sides, the apex with long rather dense black pubescence, sixth segment broadly rounded at tip, and obtusely emarginate in the middle; venter concave, polished, a long acute spine on apical middle of first segment, and a short prominent acute carina on apical middle of second segment; one specimen has the pale pubescence extending to the base of the fourth segment, and the last segment has a few long pale hairs mixed with the black. Length .55—.60 inch.

Hab.—Colorado, (Ridings, Morrison). Three specimens. A very curiously constructed species, somewhat allied to *latitarsis* Cress., in the formation of middle tarsi. In the above cut, fig. 1 represents the intermediate tarsi of *abnormis*, and fig. 2 that of *latitarsis*; fig. 3, the posterior leg (in part) of *abnormis*, and fig. 4, that of *latitarsis*, showing the form of the tibial spurs, which are short and normal in *abnormis*.

Osmia integra.—♂.—Steel-blue; head and thorax very densely and finely punctured, opaque, thickly clothed with a long erect pale pubescence, tinged with ochraceous above, and most dense on face, where it is silvery-white; anterior margin of clypeus truncate; antennæ not as long as head and thorax, black; wings hyaline, faintly dusky on apical margin; legs black, clothed with black pubescence, mixed with pale on anterior pair, tips of tarsi dull testaceous; abdomen shining, convex, very finely punctured, brilliant steel-blue, first and second segments rather thinly clothed with pale pubescence, the remainder with shorter black pubescence; sixth segment broadly rounded at tip, a shallow depression on posterior middle, apical margin entire; apical segment obtusely emarginate; third ventral segment broadly emarginate on anterior middle which is fringed with long golden hair. Length .50 inch.

Hab.—Colorado, (Morrison). Two specimens.

Osmia marginipennis.—♂.—Black, slightly tinged with greenish-blue; head and thorax finely and densely punctured, clothed with a long dense pale ochraceous pubescence, that on thorax above tinged with dull ochraceous, that on clypeus whitish, and that on cheeks mixed with black; anterior margin of clypeus subsinuate; antennæ reaching to scutellum; tegulæ piceous; wings hyaline, the apical margin conspicuously fuliginous, a fuscous streak in marginal cell; legs black, clothed with black pubescence, that on four anterior femora more or less mixed with pale, that on tarsi beneath reddish; abdomen shining, finely punctured, more strongly tinged with blue, the first segment and sides of second and third, clothed with pale pubescence, the remainder with black; sixth segment obtusely notched on apical middle, seventh segment bidentate; apical middle of third ventral segment with a small patch of golden hairs. Length .50 inch.

Hab.—Colorado, (Morrison). One specimen. This may be the ♂ either of *longula* or *juxta*.

Osmia 4-dentata.—♂.—Small, bluish-green, opaque; head and thorax densely punctured, clothed with a long whitish pubescence, very dense on clypeus, the anterior margin of which is subsinuate; antennæ reaching to the scutellum, black; tegulæ piceous; wings faintly tinged with dusky; legs slender, simple, clothed with pale pubescence, tips of tarsi dull testaceous; abdomen narrow, convex, shining, finely punctured, clothed with a short pale glittering pubescence, more conspicuous on the sides and on lateral apical margin of the segments; apex with four prominent teeth (as in figure), sixth segment being broadly sinuate on each side, with the lateral angles prominent and acute, seventh segment bidentate; venter steel-blue, second segment very large, broad, transversely impressed near base, apical margin subsinuate. Length .35 inch.

Hab.—New York, (Comstock). Easily recognized by the shape of the two apical segments of the abdomen.

Osmia inurbana.—♂.—Small, brassy-green; head and thorax subopaque, closely and finely punctured, thickly clothed with a long pale pubescence, tinged with dull ochraceous above, that on clypeus very dense and white; antennæ nearly as long as head and thorax, black; tegulæ piceous; wings faintly dusky on apical margin; legs black, clothed with pale pubescence, that on femora behind long; abdomen shining, rather thickly clothed with a short pale ochraceous sericeous pubescence, which is long on basal segment; apical margin of sixth segment subsinuate on the sides and deeply notched in the middle, seventh segment acutely bidentate. Length .35 inch.

Hab.—Colorado, (Ridings, Morrison). Four specimens. This is allied to *rustica* Cress., which is clothed with a bright fulvous pubescence and has the apical margin of sixth abdominal segment strongly sinuate laterally and only slightly notched medially.

Osmia bella.—♂.—Small, blue, green, sometimes golden-green; head and thorax densely and strongly punctured, clothed with long whitish pubescence, which is slightly mixed with black on head and thorax above, on clypeus it is dense and white; mandibles and antennæ black, the latter reaching to scutellum; wings faintly dusky on apical margin; legs bluish-green, clothed with pale pubescence, which on basal joint of tarsi beneath is black; abdomen short, convex, shining, feebly punctured, thinly clothed with a short pale pubescence, long on basal segment, and black on apical segments; sixth segment slightly produced at apex and obtusely emarginate on apical middle, seventh segment acutely bidentate; venter steel-blue or purple, second segment very large and fringed at apex with blackish pubescence. Length .35 inch.

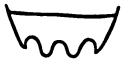
Hab.—Colorado, (Morrison). Five specimens. A handsome little species, remarkably brilliant in color, which varies through all the shades of blue and green.

Osmia exigua.—♂.—Very small, green, tinged with blue; head and thorax densely and finely punctured, clothed with a long ochraceous pubescence, which is dense and pale on clypeus, and whitish on thorax beneath; head larger than usual; antennæ black, reaching to scutellum; tegulæ golden-green; wings faintly dusky at apex; legs green, clothed with pale pubescence,

tarsi long and slender, dull testaceous; abdomen convex, shining, bluish-green, golden in certain lights, feebly punctured, thinly clothed with a pale ochraceous pubescence, long on basal segment and on sides of apical segments; sixth segment slightly produced and recurved at apex which is rounded; apical segment acutely bidentate; apical margin of second ventral segment broadly rounded. Length .20 inch.

Hab.—California, (H. Edwards). This is our smallest species.

Heriades? denticulatum.—♂.—Black, shining, closely punctured; head large, subquadrate, clothed with pale pubescence, which is long, dense and white on face, clypeus and cheeks beneath; antennæ brown beneath; thorax and scutellum thickly clothed above with short dull ochraceous pubescence, laterally and beneath it is longer and white; basal middle of metathorax



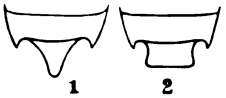
smooth and polished; tegulæ piceous; wings hyaline, marginal cell long and pointed at tip, second submarginal cell larger than the first, receiving the first recurrent nervure about one-third from base, and the second near the tip; legs robust, clothed with white pubescence, tarsi slender, rufo-testaceous at tips; abdomen as wide as thorax and about as long as head and thorax combined, convex, finely punctured, depressed at base and apex, apical margin of the segments with a narrow fringe of dense white pubescence, wider on the sides; apical margin of sixth segment with four equidistant teeth (as in figure), the lateral ones acute, the middle ones broad and subtruncate at tip; venter with two bands of long dense pale pubescence. Length .30 inch.

Hab.—Colorado, (Morrison). This may be the same as that which Say describes as the ♂ of his *Osmia bucconis*, the ♀ of which is probably that of *Alcidamea producta* Cress.; the clypeus, however, is more or less emarginate at tip, not "entire," and the four anterior tibiæ have each an acute spine at tip before.

Chelostoma californicum.—♂.—Black, shining, very finely punctured, head and thorax thickly clothed with a long fulvo-ochraceous pubescence, sparse on vertex and mesothorax, and pale on cheeks and thorax beneath; tegulæ piceous; wings fuscous, second submarginal cell narrowed at least two-thirds towards the marginal; legs slender, clothed with short pale pubescence; abdomen narrow, convex, much incurved at tip, clothed with a very short ochraceous pile, the apical margin of the segments narrowly fringed with ochraceous pubescence; apical segment with three obtuse teeth, disk deeply excavated; second ventral segment with a large transverse, obtuse elevation. Length .35 inch.

Hab.—California, (H. Edwards). One specimen.

Alcidamea truncata.—♂.—Black, shining, closely and rather strongly punctured, head and thorax thickly clothed with long ochraceous pubescence,



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paler on thorax beneath, and sparse on vertex and mesothorax; antennæ formed as in *producta*, entirely black; disk of mesothorax and scutellum sparsely punctured; tegulæ piceous; wings dusky on apical margin and in marginal cell; legs clothed with pale glittering pubescence, tips of four anterior tibiæ with a short acute tooth before,

tips of tarsi testaceous; abdomen convex, finely punctured, more coarsely so towards apex, incurved, sides and apical margin of the segments with a fringe of white pubescence; sixth segment with a short acute tooth on each side; apex of seventh segment coarsely rugose, squarely produced at tip (fig. 2) and slightly recurved, ventral segments 2—4 emarginate on apical middle, second segment not at all produced on disk. Length .32 inch.

Hab.—Georgia, (Morrison). One specimen. Very distinct from *producta* in the shape of the seventh abdominal segment which is broadly truncate at tip as in figure 2 of above cut, while that of *producta* is pointed, as in figure 1.

Anthidium cognatum.—♀.—Black; head and thorax densely and finely punctured, clothed with a whitish pubescence, very dense on face and sides of thorax; oblong spot on each side of face, two spots on apical margin of clypeus, large spot on each mandible, transverse spot on each side of occiput, spot on tegulæ anteriorly, a dot above, spot on each side of scutellum, interrupted line on posterior margin, spot or line at base of tibiæ, and a subapical band on abdominal segments 1—5, (broadly interrupted on each side and on middle, so as to form four spots on each segment, those on extreme sides larger, the two middle spots small and narrow on first, gradually becoming larger to fifth segment which is destitute of the lateral spots), yellowish; legs with whitish pubescence, very dense on basal joint of tarsi; wings smoky towards tip, neuration as in *maculifrons;* abdomen broad, shining, finely punctured, sixth segment densely punctured, apical margin subsinuate on each side with prominent lateral angles; ventral scopa dense and whitish. Length .40 inch.

♂.—Much larger, with pubescence on vertex and thorax above yellow and more dense; sides of face, clypeus, mandibles except tips, line behind ocelli broadly interrupted on middle, scape in front, spot on tegulæ in front, dot above, narrow interrupted line on posterior margin of scutellum, four anterior tibiæ in front, spot at base of posterior tibiæ, basal joint of tarsi, yellow; abdomen marked much the same as in ♀, except that the lateral spots on segments 3—5 are connected with middle spots by a slender line; sixth segment has two median emarginate spots, and a prominent acute incurved tooth on each side, while the apical segment (see figure) has three long prominent teeth, the lateral ones rather broad and obtuse and the middle one a little shorter, acute and slightly incurved. Length .50 inch.

Hab.—Georgia, (Morrison). Two specimens. Allied to *maculifrons* Smith, but the shape of the apical segment of abdomen is very different, that of *maculifrons* and of *mormonus*, described below, being almost exactly alike.

Anthidium aztecum.—♀.—Black; head and thorax finely and densely punctured, clothed with pale pubescence, very dense on face and sides of thorax; spot on lower side of face, two spots on clypeus, spot on mandibles, spot behind summit of each eye, spot on tegulæ in front, posterior margin of scutellum interrupted laterally, line or spot at base of tibiæ, a spot on each side and two dots on middle of first abdominal segment, a band on second segment interrupted into four spots, a band on segments 3—5, those on three

and four slightly interrupted medially and emarginate on each side anteriorly, that on five emarginate laterally, and on sixth segment a broad transverse mark, occupying nearly the entire surface, all yellow; third and fourth joints of flagellum beneath and more or less of the femora above pale ferruginous; basal joint of tarsi with dense white pubescence; wings smoky towards tips, neuration as in *maculifrons;* abdomen very finely punctured. Length .40 inch.

♂.—Larger and more pubescent, the vertex and thorax above clothed with an erect fulvous pubescence; sides of face, clypeus, most of mandibles, scape in front, short line behind summit of eyes, spot on anterior margin of mesothorax, spot on tegulæ, line above, four spots on scutellum, line on four anterior tibiæ, spot at base of posterior pair and basal joint of tarsi, all yellowish; abdomen marked as in ♀ except that the bands are more deeply and squarely emarginate on each side, the two middle spots on first segment larger, and the bands on apical segments more or less interrupted medially; the sixth segment has two nearly confluent spots and a prominent acute lateral tooth; apical segments formed as in *cognatum.* Length .45 inch.

Hab.—Mexico, (Sumichrast). Two specimens. Same form as that of *maculifrons* Smith, and closely allied to *cognatum.*

Anthidium maculosum.—♀.—Black; clothed with pale pubescence; two large round spots on clypeus, line on mandibles dilated at base, dot behind summit of each eye, spot on tegulæ anteriorly, two spots on scutellum, spot at base of tibiæ and four spots on abdominal segments 1—5, larger on apical segments, all yellowish-white; tarsi densely clothed with white pubescence; wings smoky, neuration as in *maculifrons;* apical margin of last abdominal segment sinuate, the lateral angles prominent and acute; ventral scopa white. Length .40 inch.

Hab.—Utah, (Putnam); California, (H. Edwards). Two specimens. This has also the same form as that of the preceding species.

Anthidium mormonum.—♂.—Black, clothed with white pubescence, most dense on face and sides of thorax; sides of face, clypeus, mandibles, dot behind summit of eyes, anterior margin of tegulæ, spot in front, dot above, spot on each basal corner of scutellum, an interrupted line on posterior margin,

all the tibiæ in front, basal joint of tarsi, large spot on each side of first abdominal segment, two minute dots on disk, and a band on segments 2—6, more or less interrupted medially and emarginate on each side anteriorly, more deeply and squarely so on segments two and three, all yellow; tubercles cariniform; neuration as in *maculifrons;* sixth segment of abdomen with a long acute lateral tooth, and apical segment with two yellow dots, prominently bilobed at tip and with a subacute central tooth, (see figure). Length .40 inch.

Hab.—Utah, (Ulke). One specimen.

Anthidium montivagum.—♀.—Black, clothed with pale pubescence; mark on sides of face, triangular mark on base of mandibles, spot behind summit of eyes, spot on each side of mesothorax in front, anterior margin of tegulæ, spot in front, line above, four spots on scutellum, line on all the tibiæ, band on abdominal segments 1—5, interrupted on middle and deeply emarginate on each side anteriorly, and two rounded spots on sixth segment, pale

yellowish-white; wings hyaline, slightly dusky at tips, recurrent nervures uniting with the transverse cubital nervures; tarsi with dense white pubescence; ventral scopa dense and whitish. Length .35 inch.

♂.—Sides of face, clypeus, broad stripe on mandibles, dot behind summit of eyes, line on scape in front, margins of tegulæ, spot in front, interrupted line on posterior margin of scutellum, all the tibiæ exteriorly and basal joint of tarsi, all yellowish-white; abdomen marked much as in ♀, except that the band on first segment only is interrupted in middle and instead of being emarginate laterally the band is dilated and encloses a small black spot, the sixth segment has a broad transverse mark emarginate at each end, and has a sharp lateral tooth; last segment with a yellowish band slightly interrupted medially and dilated laterally, the apical margin shaped as in *mormonum;* last ventral segment with three spines, the middle one truncate at tip and the lateral ones acute. Length .33 inch.

Hab.—Colorado, (Ridings). Two specimens. In form and markings this is a miniature of *maculifrons* Smith, the ♂ of which, however, has only a single spine at apex of venter.

Anthidium atriventre.—♀.—Black, clothed with pale pubescence; face, basal joint of tarsi and venter with fuscous or black pubescence; dot behind summit of eyes, tegulæ anteriorly, dot beneath, two or four spots on posterior margin of scutellum, line at base of all the tibiæ, and band on abdominal segments 1—6, slightly interrupted in middle and emarginate on each side anteriorly, whitish; sometimes the basal band on abdomen encloses a black dot on each side; wings slightly smoky, neuration as in *maculifrons;* anterior margin of clypeus coarsely denticulated. Length .30—.35 inch.

Hab.—California, (H. Edwards). Two specimens. A small species marked much like the preceding, but the pubescence on face and ventral segments is black.

Anthidium jocosum.—♂.—Black, clothed with whitish pubescence; sides of face, clypeus, mandibles exteriorly except tips, dot behind summit of each eye, tegulæ except middle, spot in front, widely interrupted line on posterior margin of scutellum, line on base of all the tibiæ, basal joint of tarsi, band on abdominal segments 1—6, (gradually broader on apical segments, those on 1—3 slightly interrupted on middle, that on first segment interrupted into four spots, that on second segment squarely emarginate laterally, and those on third and fourth segments slightly sinuate laterally), and two spots on apical segment, pale yellowish; sixth segment with a sharp lateral tooth; apical segment (see figure) broadly, not deeply, emarginate on posterior middle, with a sharp central tooth, the lateral lobes very broad, rounded laterally and truncated posteriorly; anterior margin subarcuate, smooth; wings faintly dusky at tips, neuration as in *maculifrons.* Length .30 inch.

Hab.—Colorado, (Ridings). One specimen. A pretty little species, with the bands on apex of abdomen broad and uninterrupted.

Anthidium Ridingsii.—♀.—Black, shining; head finely punctured; face, sides of clypeus and cheeks with dense pale pubescence, that on vertex very short and fuscous; mesothorax strongly punctured, with very short

sparing pubescence, behind, on sides of metathorax and on pleura the pubescence is short and dense; wings fuliginous, darker on apical margin; legs with short pale pubescence, that on tarsi beneath dense and fulvous, anterior tarsi and tips of two posterior pairs rufo-testaceous; abdomen convex, shining, finely punctured, apical margin of segments 1—5 narrowly white: ventral scopa fulvous-yellow. Length .50 inch.

Hab.—Georgia, (Mr. Jas. Ridings). One specimen. A very distinct species, easily recognized by the abdominal fasciæ being very narrow and regular.

Anthidium crassipes.—♀.—Black, thinly clothed with pale pubescence; sides of face, anterior orbits, large triangular mark on clypeus, dot behind summit of eyes, lateral and anterior margin of mesothorax broadly interrupted in front, spot on tegulæ in front, dot beneath, broad lateral margins of scutellum, and large elongate spot beneath wings, bright yellow; anterior margin of clypeus deeply notched on middle; mandibles very robust; head and thorax coarsely punctured; tubercles formed into a transverse concave scale, rounded on the sides and strongly reflexed anteriorly; wings fuscous, neuration as in *maculifrons;* legs short, very robust, ferruginous, four anterior tibiæ more or less, and apex of posterior pair yellow, basal joint of tarsi broad and flat; abdomen strongly punctured, shining, a yellow band on five basal segments, broad laterally, much narrowed medially where they are very slightly interrupted; sixth segment immaculate, densely clothed with pale sericeous pubescence; ventral scopa yellowish. Length .46 inch.

Hab.—Florida, (Tatnall). One specimen. The fasciæ on the abdomen are very much narrowed medially.

Anthidium Edwardsii.—♂.—Black; head above antennæ and thorax above clothed with dense fulvous pubescence, that on face, thorax beneath and legs is whitish; sides of face, clypeus, mandibles, dot behind summit of eyes, tegulæ in front, interrupted line on posterior margin of scutellum, all the tibiæ exteriorly and basal joint of tarsi, yellowish-ferruginous; wings slightly dusky at tips, neuration as in *maculifrons;* abdomen minutely punctured, shining, a yellow band on segments 1—6, interrupted on middle of first segment and emarginate on each side posteriorly; the bands on remaining segments broad and uninterrupted, being merely notched on anterior middle and that on second only being slightly notched on each side anteriorly, the other bands being even; sixth segment with a sharp tooth on each side; apical segment ferruginous at base, shaped much as in *cognatum*, except that the lateral lobes are slightly divergent and the central tooth shorter; last ventral segment with an oblique tooth on each side. Length .40 inch.

Hab.—California, (H. Edwards). One specimen. A very distinct species.

Anthidium formosum.—♂.—Large, black, head, thorax and base of abdomen rather thickly clothed with short erect whitish pubescence; sides of face, clypeus, mandibles exteriorly except tips, line behind summit of each eye, spot on tegulæ in front, spot beneath, all the tibiæ exteriorly, basal joint of tarsi, spot on each side of first abdominal segment, a band on segments 2—6 interrupted on middle, those on two and three emarginate on each side

posteriorly, and two large rounded spots on apical segment, all lemon-yellow;

the bands on segments 4—6 are broad, even, and slightly interrupted on middle; sixth segment with a long acute lateral spine; last segment (see figure) broadly and deeply emarginate at tip, with a stout acute central spine, as long as lateral lobes which are obliquely sinuate on outer sides and spiniform within; anterior margin of clypeus strongly arcuate and smooth; wings smoky, the second submarginal cell receives the first recurrent very near the base, while the second passes a little beyond the tip. Length .55 inch.

Hab.—Colorado, (Ridings). One specimen. Quite distinct by its markings and shape of anal segment of abdomen.

In this and all the following species of this genus, the second recurrent nervure passes beyond the apex of the second submarginal cell.

Anthidium venustum.—♀.—Black, clothed with yellowish pubescence; anterior orbits broad on sides of face, line on posterior orbits, two spots on clypeus sometimes confluent on anterior margin, two spots on anterior margin of mesothorax, tegulæ anteriorly, spot beneath, posterior margin of scutellum interrupted into a spot on each basal corner, knees, line on anterior femora beneath, all the tibiæ exteriorly, their tarsi, and band on abdominal segments 1—6, all yellow; the bands on segments one and two interrupted into three spots, the middle spot on second segment being subinterrupted in middle and notched at each end; the bands on remaining segments slightly interrupted medially and rounded, that on third segment emarginate on each side posteriorly, while those on the two following segments enclose a short black line on each side; the band on sixth segment notched at each end; tubercles formed into a large broad concave scale, rounded laterally and strongly reflexed anteriorly; wings fuliginous; posterior coxæ with a stout yellow tooth at apex beneath; anterior margin of clypeus strongly denticulate; mandibles very robust; abdomen strongly and sparsely punctured; ventral scopa pale yellowish. Length .40—.45 inch.

Hab.—Colorado, (Ridings, Morrison). Four specimens. Closely related to *interruptum* Say, but larger.

Anthidium texanum.—♂.—Black, densely punctured; sides of face, clypeus, narrow anterior orbits, short line behind summit of eyes, and the mandibles, yellowish; sides of face and occiput with pale ochraceous hair; anterior margin of clypeus denticulated; thorax more densely punctured than head; a spot on each side of mesothorax anteriorly, posterior margin of scutellum, interrupted medially, and the tubercles (which have a thin recurved margin anteriorly, yellow or fulvous; sides of metathorax and pleura clothed

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with a pale ochraceous pubescence; tegulæ ferruginous with a yellow spot in front; wings fuliginous, paler beneath marginal cell which is dark fuliginous; legs fulvo-ferruginous, posterior knees, tips of their tibiæ and basal joint of their tarsi, yellow; abdomen shining, sparsely and strongly punctured, first segment tinged with ferruginous; a rather broad yellowish-ferruginous band near apex of segments 1—5, those on one and two indented on anterior middle, and those on 3—5 inter-

rupted medially, all enclosing laterally a transverse black spot or line; lateral apical margin of sixth segment narrowly yellowish; apical segment yellowish-ferruginous, shaped as in fig. 1. Length .36 inch.

Hab.—Texas, (Belfrage). Two specimens. This is very much like *concinnum* Cress., ♂ in size and ornamentation, but may be distinguished at once by the shape of the last dorsal segment of the abdomen, and by the posterior coxæ being destitute of the strong yellow tooth so conspicuous in *concinnum*. *A. interruptum* Say (= *curvatum* Sm.) ♂, *simile* Cress. ♂, *concinnum* ♂, and *texanum* are all very similar in size and ornamentation, but are easily separated by the shape of the last dorsal segment of the abdomen, as given in the above cut. Fig. 1 represents that of *texanum*; fig. 2, *concinnum*, and fig. 3, *interruptum*; in *simile* the shape of that segment is as represented by fig. 3, except that the apical margin is sinuate on each side of the middle and not emarginate, the central tooth being broad and rounded. All have a stout yellow tooth on posterior coxæ, except *texanum*.

Anthidium parvum.—♀.—Small, black; anterior orbits broad on the face, sometimes two spots on clypeus, line behind summit of eyes, two spots on anterior margin of mesothorax, tegulæ anteriorly, spot before, narrow interrupted line on posterior margin of scutellum, knees, spot at base of tibiæ, a spot on each side and line on middle of first segment of abdomen, a broad oblong stripe on each side of segments 2—5, (curved downwards and pointed within, the curved form being given by a deep notch in the middle of each stripe beneath), and sometimes two dots on apical segment, all yellow; tubercles bearing a large broad thin translucent scale, rounded laterally and subreflexed anteriorly; wings subhyaline, marginal cell fuliginous, abdomen shining strongly and sparsely punctured; ventral scopa yellowish. Length .27 inch.

♂.—Marked like the ♀ except that the clypeus is entirely yellow, the sixth segment of abdomen with a yellow spot on disk and dot on each side, and the apical segment yellow and shaped much as in *interruptum*; posterior coxæ each with a stout yellow tooth. Length .28 inch.

Hab.—Colorado, (Ridings). Two specimens. Marked very much like *simile*, but smaller.

Anthidium palliventre.—♀.—Black; head and thorax clothed with a dense pale pubescence, tinged with yellowish on vertex and thorax above, and sparse on clypeus, the anterior margin of which is subconcave and uneven; a pale spot behind the summit of each eye; wings smoky, tegulæ with a pale spot in front; four anterior tibiæ with a short acute spine at their tip, basal joint of tarsi with blackish pubescence beneath and at tip above of two anterior pairs; abdomen short, broad, convex, shining, sparsely clothed with long pale pubescence, marked as in *atriventre* except that the pale band on first segment is interrupted into four spots; ventral scopa pale. Length .40 inch.

Hab.—California, (H. Edwards). This is broader and more pilose than *atriventre* and has the ventral scopa pale.

Anthidium lepidum.—♂.—Black, pubescence pale; head and thorax closely and coarsely punctured, and abdomen sparsely punctured and shining; anterior orbits, small spot on vertex, band on occiput extending half-way down the cheeks, a short line beneath eyes, clypeus, mandibles except tips, broad lateral margin of prothorax angular in front, two stripes on disk attenuated before and dilated behind, broad posterior margin of scutellum, interrupted into four spots, basal ones minute, the other two large, knees, tibiæ in front, tarsi, stripe on anterior femora beneath, spot on posterior coxæ beneath, transverse sublunate spot on each side of first abdominal segment, band on each of the five following segments, slightly interrupted on middle of segments 2—4, broad and notched medially on five and semicircular on six, all lemon-yellow; apical segment yellow, tipped with black, obtusely pointed with a small acute tooth on each side at base; venter yellowish; wings pale fuliginous, darker beyond stigma; tegulæ honey-yellow, paler in front; scutellum rounded behind, slightly notched medially; tubercles subacutely toothed, anterior margin straight, scarcely reflexed. Length .30 inch.

Hab.—Georgia, (Morrison). Resembles *jugatorium* Say, in ornamentation of abdomen.

Anthidium Ulkei.—♀.—Small, black, with pale pubescence; head and thorax with rather fine, very dense punctures; broad anterior orbits, a dot on middle of face, just above clypeus, a vertical spot on vertex, two dots behind ocelli, stripe behind eyes, spot at base of mandibles, sides of clypeus broadly, two distant spots on anterior margin of mesothorax, tubercles, outer margin of tegulæ, posterior margin of scutellum confluent with spot at basal angle, quadrate spot beneath tubercles, four anterior femora beneath, all the knees, tibiæ exteriorly, and base of tarsi, all lemon-yellow; tubercles formed into a broad, thin, subconcave plate, with margin rounded laterally and reflexed anteriorly; wings pale fuliginous, darker in marginal cell and beyond, second recurrent nervure passing a little beyond apex of second submarginal cell; apex of scutellum slightly notched; abdomen convex, shining, strongly and sparsely punctured, segments 1—5 each with a lemon-yellow band, that on one and two narrow medially and dilated laterally, slightly emarginate on each side posteriorly; the band on three, four and five broad and slightly interrupted or subinterrupted on the middle; sixth segment with two large sublunate yellow spots; ventral scopa yellow. Length .30 inch.

Hab.—Utah, (Mr. Henry Ulke). One specimen. A beautiful little species.

Anthidium Gabbii.—♂.—Black, densely punctured, clothed with ochraceous pubescence; broad anterior orbits, spot above antennæ, clypeus, transverse line above, spot on mandibles, broad posterior margin of head, lateral margins of mesothorax curved inwardly in front, broad posterior margin of scutellum, curved line on tegulæ anteriorly, knees, stripe on anterior tibiæ in front, and a broad uninterrupted band at base of abdominal segments 1—6, all bright sulphur-yellow; wings fuliginous, paler towards base; legs clothed with short pale pubescence, tarsi more or less pale testaceous; abdomen convex, finely and densely punctured, clothed with a short ochraceous pubescence; apical segment obtusely pointed with a stout blunt tooth on each side near base. Length .35 inch.

Hab.—Costa Rica, (Mr. W. M. Gabb). One specimen. This somewhat resembles *lepidum* in ornamentation and in the shape of the last dorsal segment of the abdomen.

Anthidium mexicanum.—♀.—Black; head and thorax densely punctured, opaque, clothed with a short pale glittering pubescence, dense on sides of face and of metathorax; spot on each side of face, narrow line on posterior margin of head above, and a narrow interrupted line on posterior margin of scutellum, dull yellow; antennæ tinged with ferruginous at base and beneath; tubercles transverse and carinate anteriorly; wings fuscous, darker on costal margin; legs with pale pubescence, anterior pair brown; abdomen convex, shining, finely and sparsely punctured; a transverse mark on each side of first segment pointed within, and a broad band on middle of segments 3—6 abbreviated laterally, all orange-yellow; ventral scopa whitish. Length .30 inch.

♂.—Clypeus, anterior orbits broad on sides of face, spot at base of mandibles, line on scape beneath, and sometimes an interrupted line on anterior margin of mesothorax, yellow; tarsi fringed with long white pubescence, anterior tibiæ fulvous in front, base of all the tarsi more or less yellow; apical segment of abdomen broadly rounded behind, the margin slightly recurved and testaceous; otherwise as in ♀.

Hab.—Mexico, (Sumichrast). Ten specimens.

Anthidium apicale.—♀.—Short, broad, very robust, black, opaque, densely and finely punctured; vertex with a patch of short, dense fuscous pubescence, otherwise the pubescence is pale; spot on each side of face and line on posterior margin of head above, yellow; mesothorax with a short appressed golden-ochraceous pile; scutellum broadly truncate behind, the margin crenulated, more coarsely sculptured than remainder of thorax; dot above tegulæ, posterior margin of scutellum and dot on the carinate tubercles, yellow; tegulæ fulvous, yellow in front; wings fuscous at tip, yellow on costal margin; legs clothed with pale pubescence, the knees more or less and stripe on middle tibiæ before, yellow; abdomen nearly globose, finely and densely punctured covered with a short, pale sericeous pile; a broad uninterrupted orange-yellow band near apex of segments 3—5, base of sixth segment yellow; ventral scopa yellowish. Length .30 inch.

♂.—Clypeus, sides of face, and large spot on mandibles, yellow; sixth segment of abdomen yellow with two fuscous spots, apical segment broadly rounded at tip, yellow, black at base, lateral apical corners of segments 3—6 lobate; otherwise as in ♀.

Hab.—Mexico, (Sumichrast). Three specimens. This and the two following species are closely related and have a short broad, robust form somewhat like that of *perplexum* and *notatum*.

Anthidium bivittatum.—♂.—Form of *apicale*; black, opaque, densely punctured, clothed with a short pubescence, which is fuscous on vertex, dull ochraceous on mesothorax and pale elsewhere; clypeus except base, spot on mandibles, narrow anterior orbits, two lines between antennæ, and a line on posterior margin of head sometimes interrupted, yellow; the front between antennæ prominent and carinate laterally; antennæ tinged with ferruginous at base; scutellum coarsely punctured, rounded behind; two stripes on meso-

thorax, and posterior margin of scutellum, yellow; metathorax smooth and polished, basal margin crenulated; tegulæ brown; wings yellow at base and along costa, and with a fuscous streak at tip of marginal cell; legs clothed with pale pubescence, anterior pair pale brown, stripe on middle tibiæ beneath and spot at apex of posterior pair beneath yellow; abdomen very densely punctured, golden-sericeous, segments 3—6 yellow, more or less margined at apex with fuscous or black; apical segment short, yellow at tip which is rounded and obtusely emarginate medially; venter with a yellow spot on sides of second segment. Length .35 inch.

Hab.—Mexico, (Sumichrast). Two specimens.

Anthidium toltecum.—♂.—Form and color of *apicale*, but more robust, the pubescence longer and more dense; clypeus, sides of face, and spot on mandibles, yellow; a slightly interrupted line on posterior margin of scutellum and dot on tegulæ yellow; tubercles flattened and scale-like above; wings as in *apicale;* four anterior tibiæ and tarsi fringed behind with long pale pubescence, line on anterior tibiæ in front yellow, tips of middle tibiæ, line on posterior pair behind and all the tarsi, fulvo-ferruginous; abdomen with a short, rather dense golden sericeous pubescence, segments 3—7 yellow, more or less black at base, a transverse spot on each side of segments 3—5 and two spots on apical middle of sixth segment, which is sinuate, black; apical segment deeply and squarely emarginate on apical middle (as in figure). Length .35 inch.

Hab.—Mexico, (Sumichrast). One specimen.

Anthidium agnatum.—♂.—Small, black, opaque; head and thorax with large deep coarse punctures, thinly pubescent; clypeus, narrow anterior orbits, narrow interrupted line on posterior margin of head above, two spots between insertion of antennæ, broad posterior margin of scutellum, a dot on each side at base, and a broad, even uninterrupted band on segments 3—7, all bright lemon-yellow; tegulæ prominent and cariniform, scutellum broadly rounded behind and obtusely emarginate medially; tegulæ piceous; wings fuliginous, darker on costal margin, legs slender, brown, shining, tarsi thickly clothed with pale pubescence; abdomen finely and densely punctured, gradually more coarsely so at sides, apical segment small, broadly rounded behind. Length .25 inch.

Hab.—Mexico, (Sumichrast). One specimen. A pretty little species.

Megachile totonaca.—♀.—Black, shining, sparsely and finely punctured; face and cheeks clothed with a short dense white pubescence, on the vertex it is sparse and black; clypeus nude, with a little white pubescence on apical margin; pubescence of thorax black, except a slight admixture of white on each side of prothorax above; mesothorax except sides and scutellum, which is rounded behind, nude and with scattered fine punctures; wings dark fuliginous, violaceous, darker on costal margin, legs clothed with short black pubescence, basal joint of tarsi broad; abdomen finely punctured, nude above, with a little black pubescence at base and scattered black hairs on sides of apical segments; sixth segment sericeous, very densely and minutely sculptured, broadly rounded at tip; ventral scopa yellowish-white, black at sides of basal segments. Length .55 inch.

Hab.—Mexico, (Sumichrast). Two specimens.

Megachile mucida.—♀.—Black; face, cheeks, thorax entirely, and basal segment of abdomen rather densely clothed with a long pale ochraceous pubescence, slightly mixed with black on clypeus and vertex; wings strongly tinged with fuscous; legs clothed with black pubescence, that on anterior femora behind pale, basal joint of tarsi broad; abdomen short, shining, feebly punctured, clothed with short black pubescence, except on first segment; ventral scopa black. Length .55 inch.

♂.—Pubescence much longer and more dense; legs clothed with long pale pubescence, especially the anterior pair, the coxæ of which are armed with two long black spines, their femora yellowish within, their tibiæ yellowish at tip and within, their tarsi whitish, dilated and fringed beneath with long pubescence, white on outside and black within, first joint with a long pointed white scale-like process at base above, hollowed out on inside and fringed on upper edge within with short black pubescence, second and third joints also prolonged at tip above, claws black, pale at base; intermediate tarsi somewhat dilated and densely hairy, posterior pair with black pubescence above and fringed with long pale hairs beneath; wings dusky on apical margin; abdomen shining, with long pale pubescence on first and base of second segments, elsewhere with long black pubescence except on venter where it is mixed with pale; sixth segment with the apical margin transversely compressed and deeply notched medially; terminal segment with two short teeth on each side and a prominence in the middle. Length .50 inch.

Hab.—Georgia, (Morrison). Four specimens.

Megachile gemula.—♀.—Black, shining, densely and finely punctured; face, cheeks and thorax clothed with pale ochraceous pubescence, which is short, sparse and slightly mixed with black on mesothorax, on vertex it is sparse and black; wings fusco-hyaline; legs thickly clothed with a short pale ochraceous pubescence, which on tarsi beneath is fulvous; basal joint of tarsi broad; abdomen above black, without any indication of pale bands, basal segment clothed with pale pubescence, long on the sides; ventral scopa dense and yellow. Length .57 inch.

♂.—Pubescence longer and more dense, entirely black on disk of mesothorax; wings dusky on apical margin; legs black, with short black pubescence, anterior coxæ each with a strong black spine, their femora fulvous within, fringed beneath with long pale pubescence, their tarsi brownish, slightly dilated, fringed above with black and beneath with long pale pubescence, basal joint prolonged at tip above and hollowed out on the inside; four posterior legs thinly clothed beneath with long mixed black and pale pubescence; abdomen shining, clothed rather thickly with black pubescence which is long and mixed with pale at tip; basal segment clothed with pale pubescence, and the lateral apical margin of segments 2—4 fringed with pale hairs; sixth segment excavated, the apical margin transversely compressed and deeply notched medially; terminal segment with a short tooth on each side, nearly hidden by the long pale pubescence with which it is clothed. Length .50 inch.

Hab.—Georgia, (Morrison). Three specimens. The ♂ of this has much the general appearance of *mucida* ♂, but is easily distinguished by the anterior tarsi being much less dilated and of a different color.

Megachile Palmeri.— ♀.—Black, entirely clothed with a dense bright fulvo-ferruginous pubescence, slightly mixed with black on vertex; mandibles coarsely rugose; wings margined at apex with fuscous; tarsi ferruginous, basal joint broad; abdomen finely punctured, apical margins of the segments above fringed with a dense fulvous pubescence; ventral scopa dense and fulvous. Length .55—.65 inch.

♂.—Pubescence more dense and longer, that on face golden and that on vertex and thorax above tinged with fuscous; anterior coxæ each with a long curved black spine, their femora fringed beneath with a long dense fulvous pubescence, their tarsi yellowish, dilated, concave and margined with dusky within, and fringed beneath with a long white pubescence, at base above a long hollow process, obtusely pointed, sinuate and honey-yellow at tip, clothed at base with golden pubescence; sixth segment of abdomen excavated, the tip notched and coarsely serrate; apical segment with a short blunt central tooth. Length .55 inch.

Hab.—Guadalupe Island, situate in the Pacific Ocean about one hundred miles westward of the coast of the peninsula of Lower California. Five specimens, collected by Dr. Edward Palmer. A beautiful species, the pubescence being dense and bright fulvo-ferruginous.

Megachile azteca.— ♀.—Black; face and cheeks clothed with pale pubescence, slightly mixed with black, on vertex it is fulvous; thorax above with short dense fulvous pubescence, on the sides and beneath it is griseous; tegulæ fulvous; wings yellowish-hyaline, faintly dusky on apical margin; legs with short pubescence, black on four posterior tarsi above and yellowish beneath, basal joint broad; abdomen with long fulvous pubescence on basal segment, the apical margin of the segments fringed with bright yellow pubescence, apical segment pale subpruinose, with scattered black hairs; ventral scopa whitish except on two apical segments where it is black. Length .50—.55 inch.

♂.—Smaller and narrower than ♀, with the pubescence on face and clypeus dense and golden; legs pale ferruginous; anterior coxæ each with a long black spine, their femora lineate with dusky within, their tarsi whitish, dilated, fringed beneath with long pale pubescence, tipped with fuscous, at base above a long obtusely pointed process, hollowed out on the inside, second and third joints also prolonged at tip above, the former having a shining black spot on the inside; intermediate and posterior coxæ and their femora above and behind blackish, their tarsi slender; abdomen sericeous, with longer pubescence than in ♀; the sides parallel, sixth segment excavated, the apical margin with two stout obtuse teeth; venter shining black, the segments narrowly margined at apex with white. Length .45 inch.

Hab.—Mexico, (Sumichrast). Ten specimens.

Megachile Sayi.— ♂.—Form elongate, rather narrow, parallel, the head, thorax and abdomen being about the same width throughout; black, finely and very densely punctured; face and clypeus with long dense yellowish-white pubescence, which is sparing on vertex and short and white on cheeks; thorax with long dense white pubescence, except on mesothorax where it is short and mixed with black; tegulæ pale brown; wings dusky on apical margin, darker at tip of marginal cell; legs brown-ferruginous or black, clothed with snow-

white pubescence; anterior coxæ each with a long black spine, their tarsi whitish, dilated and fringed beneath with long white pubescence, first, second and third joints prolonged and pointed at tip above, the process on first joint grooved within and margined with fuscous pubescence, second joint within with a black spot; intermediate and posterior tarsi long and slender; abdomen elongate, sides subparallel, densely punctured, base and apex with a thin, rather long, whitish pubescence, segments 1—5 with a narrow white submarginal band of white pubescence; sixth segment deeply excavated on the disk, the apex transversely compressed, deeply notched medially and subserrate on each side. Length .50—.55 inch.

? ♀.—Head subquadrate; sides of face, cheeks, prothorax, metathorax and pleura clothed with griseous pubescence, mesothorax and scutellum almost nude, having a few scattered short black hairs, longer on scutellum; wings dark fuliginous at apex; legs slender, piceous or black, tarsi rufo-testaceous, with yellowish pubescence; abdomen with subparallel sides, segments 1—5 each with a narrow fringe of dense white pubescence at apex; ventral scopa whitish, apical segment clothed with short black hairs. Length .50—.55 inch.

Hab.—Del., N. C., Ga., Kans., Tex. Eight specimens. The ♂ specimens from Texas have the legs, except coxæ, entirely brown-ferruginous.

This is closely allied to *pollicaris* Say, and *pugnata* Say (= *scrobiculata* Sm., *disparilis* Cress., *lucrosa* Cress.), and was mistaken by me for the latter species in my list of Texan hymenoptera. It differs, however, from both species by the less dilated anterior tarsi of ♂, the lobate process being much smaller, and from *pollicaris* by the intermediate tarsi being slender and simple. The ♀ of *pugnata* has the head large and cubical, and the cheeks armed at base beneath with a more or less large obtuse tooth, sometimes hidden by the pubescence, thus escaping my notice in describing the single specimen from Texas; otherwise it closely resembles what is doubtingly described above as the ♀ of *Sayi;* it varies greatly in size in both sexes.

In my remarks on *pollicaris* Say, (Trans. Am. Ent. Soc. iv, p. 264), the types have made me say exactly opposite to what was intended. The sentence should read: "This may not be the true *pollicaris*, as Say, although mentioning the long, prominent, yellow scale-like process, tipped with honey-yellow, at base of anterior tarsi, says nothing about the intermediate legs being red," etc.

Megachile fidelis.— ♀.—Black, opaque, very densely and finely punctured; head subquadrate, the face and clypeus clothed with a long dense yellowish pubescence, which on the cheeks is short and white and on vertex sparing and black; clypeus with a stout, obtuse, transversely compressed, incurved tooth on each side; mandibles rugose; mesothorax and scutellum with a few scattering black hairs; prothorax, lateral margin of mesothorax, sides of scutellum, metathorax and pleura laterally and beneath densely clothed with a long griseous pubescence; tegulæ piceous; wings fuscous, fuliginous on

apical margin and yellowish towards base; legs clothed with short yellowish pubescence, which on tarsi is fulvous; abdomen with subparallel sides, closely punctured, rather deeply transversely impressed at base; first segment clothed with pale pubescence especially at sides, segments 2—5 with short black pubescence and fringed at apex with a short dense yellow pubescence, longer at the sides; apical segment covered with a dense yellow pile, the tip slightly compressed; ventral scopa dense and pale yellowish. Length .45—.50 inch.

♂.—Resembles the ♀, but smaller, the face and clypeus clothed with a long dense pale yellow or white pubescence; clypeus unarmed; cheeks beneath with long white pubescence; wings paler; anterior coxæ each with a long black spine, their femora and tarsi fringed beneath with long white pubescence, that on tarsi tipped within with fuscous, their tibiæ more or less fulvous within, the tip acute beneath, their tarsi whitish, the three basal joints dilated, and at base of the first a long pointed yellow lobe, hollow within, the second and third joints also produced at tip above, each having a shining black spot on the inside; four posterior tarsi rufo-testaceous, and clothed with yellow pubescence; abdomen ornamented as in ♀, except that the extreme base of segments 3—5 have a yellowish band at base, and the fifth segment has long fulvous hair; sixth segment deeply excavated, the apical margin transversely compressed and deeply notched medially, with the sides more or less serrate. Length .45 inch.

Hab.—Colorado, (Morrison); California, Oregon, (H. Edwards). Fourteen specimen. The parallel form, bright yellow bands on abdomen, and bidentate clypeus of ♀, will readily distinguish this pretty species.

Megachile mellitarsis.—♂.—Black, opaque, very densely and finely punctured, clothed with a long white pubescence, very dense on face and clypeus; a short, stout tooth on each side beneath base of mandibles; on vertex and mesothorax the pubescence is very sparing; tegulæ piceous; wings tinged with yellow, the costal vein honey-yellow; legs black, the femora beneath clothed with a long white pubescence, all the tarsi bright saffron-yellow, the two posterior pairs clothed with golden-yellow pubescence; anterior coxæ each with a long black spine, their tarsi dilated and fringed beneath with long white pubescence and on upper margin within with short black hairs, at base above a long process, hollow within, the tip sinuate and prolonged nearly to base of the fourth joint, within the joints are striped or spotted with black; abdomen subquadrate, shining, thickly clothed with a griseous pubescence, long on basal segments, short and dense on apical margin of segments 2—4; sixth segment excavated on disk, the apical margin slightly notched medially and coarsely serrate; apical segment with a short subacute tooth on middle and carinate on each side. Length .45 inch.

Hab.—Colorado, (Morrison). One specimen. Easily distinguished by the yellow tarsi; the lobe at base of anterior pair is shaped exactly as in *Palmeri*, the tip being prolonged and curved.

Megachile integra.—♂.—Black, closely and minutely punctured especially the thorax; head broader than thorax, the face and clypeus clothed with long dense golden yellow pubescence, which on cheeks is white and on vertex thin and ochraceous; base of mandibles with a patch of white pubes-

cence; thorax with whitish pubescence on sides and beneath, on mesothorax and scutellum ochraceous, short and sparse on the disk; tegulæ dull fulvous; wings faintly dusky on apical margin; legs robust, black, the femora and four anterior tarsi beneath fringed with long white pubescence; anterior coxæ each with a long black spine, their femora yellowish, with the base and upper and lower margin within and apex above black, the lower edge compressed, dilated and broadly rounded to tip, their tibiæ mostly yellowish, their tarsi white, the first four joints dilated, gradually less so to the fourth, the basal joint slightly lobed at tip above, the upper edge sinuate and grooved within, the fringe within black; intermediate tarsi slightly dilated, and fringed behind with long white pubescence; posterior tarsi short and robust; abdomen subquadrate, sides subparallel, densely punctured, clothed with short black pubescence, longer and ochraceous on basal segment, and long and sparse on sides and tip, base of the segments transversely depressed, apical margin of segments 1—5 fringed with ochraceous pubescence, and where the segments are distended the base has a band of whitish pubescence; sixth segment rounded at tip and entire; apical segment with a short stout tooth on each side. Length .48 inch.

Hab.—Texas, (Heiligbrodt). Three specimens.

Megachile manifesta.—♂.—Black, head, thorax and base of abdomen densely clothed with a long pale ochraceous pubescence, white on face, clypeus, cheeks and thorax on sides and beneath; wings subhyaline, apical margin dusky; legs with long white pubescence, that on the four anterior tarsi beneath very long; anterior coxæ each with a long broad black spine, their femora and tibiæ more or less fulvous within, the former lobed at base beneath and compressed and dilated towards tip to which it is broadly rounded, their tarsi whitish, not broadly dilated, fringed within with short black hairs, at base above a narrow lobe, hollow within, subsinuate above, and not quite reaching to tip of second joint; posterior tarsi with long yellowish hair; abdomen slightly narrowed to tip, clothed above, except base, with short pale pubescence, slightly mixed with black, the apical margin of segments 2—5 with a narrow fascia of short dense white pubescence; sixth segment slightly depressed medially, the apical margin broadly rounded and coarsely serrate; apical segment clothed with long pale pubescence, a short broad tooth on each side, and a long acute spine on the middle. Length .45 inch.

Hab.—Colorado, (Ridings). Five specimens.

Megachile ingenua.—♂.—Black, shining; head large, finely not densely punctured, face and clypeus with long dense pale yellow pubescence, that on cheeks short and white, that on vertex long, sparing and black; mesothorax sparsely punctured, thinly clothed with long pubescence, black on disk, pale ochraceous at sides and before; on scutellum, metathorax and pleura the pubescence is long and pale ochraceous or white; wings dusky on apical margin; legs slender, black, clothed with whitish pubescence, yellowish on tarsi; anterior coxæ each with a short black spine, their tarsi whitish and slightly dilated, the upper edge of basal joint grooved on the inside and fringed with black hairs, beneath the joints are fringed with long white pubescence, the second, third and fourth tipped with black; intermediate tarsi slightly dilated; abdomen subquadrate, the first and base of second segments with long pale ochraceous pubescence, elsewhere it is short and black except a narrow white fasciæ on apical margin of segments 2—5; sixth segment exca-

vated, the apical margin transversely compressed, deeply notched centrally and more or less coarsely serrate on each side. Length .42 inch.

Hab.—Georgia, (Morrison). One specimen.

Megachile georgica.—♀.—Form narrow, elongate, subparallel, black, subopaque, closely and strongly punctured; head broader than thorax, sides of face and cheeks clothed with griseous pubescence, clypeus coarsely punctured; pro- and metathorax and pleura with rather long griseous pubescence; wings more or less dusky especially on apical margin; legs slender, black, clothed with short pale pubescence, tarsi slender; abdomen with parallel sides, segments 2—4 deeply transversely impressed near base and together with basal segment narrowly fringed at apex with short white hair, longer laterally, the surface sparsely punctured; ventral scopa white or yellowish-white. Length .50 inch.

♂.—Resembles the ♀ but with the pubescence more dense and snow-white, that on face and clypeus long and dense; flagellum dull testaceous beneath; legs slender, clothed with white pubescence, anterior coxæ each with a black spine, tarsi pale brown, the anterior pair with joints one and two dilated; sixth segment of abdomen deeply notched on apical middle; ventral segments fringed at apex with long snow-white pubescence. Length .45 inch.

Hab.—Georgia, (Morrison). Six specimens.

Megachile ávara.—♂.—Black; face, clypeus, cheeks, thorax, four anterior legs, and abdomen at base, sides and apex clothed with a long, dense, pale pubescence, that on vertex and disk of mesothorax more or less black; wings dusky at tips; anterior coxæ each with a black spine, their femora and tibiæ more or less fulvous within, and with the tarsi fringed beneath with a long dense white pubescence, that on tarsi within tipped with black, the basal joints of the latter dilated, but not broadly so, fuscous or dull testaceous, the upper margin of basal joint grooved on inside and fringed with short black hairs; intermediate tarsi also dilated, and densely clothed with pale yellow pubescence; abdomen subquadrate, shining, the pubescence, especially at base, long and pale, but not concealing the surface which is feebly sculptured, on segments four and five the pubescence is mostly black and the lateral apical margin fringed with white hairs; sixth segment broadly emarginate on apical middle, and clothed beneath with long pale pubescence. Length .45 inch.

Hab.—Georgia, Colorado, (Morrison). Eight specimens.

Megachile otomita.—♂.—Black, shining, closely and strongly punctured; head rather wider than thorax, the face and clypeus clothed with a long dense white pubescence, shorter on cheeks beneath and sparing on vertex; mesothorax with short sparse pale pubescence, slightly mixed with black, that on scutellum, metathorax and pleura long and pale; tegulæ piceous; wings dusky at tips; anterior coxæ each with a long acute spine, the three basal joints of their tarsi dilated, concave within and clothed outwardly with white pubescence; four posterior tarsi fringed with long white pubescence; abdomen short, convex, basal and apical segment with long pale hairs, base of segments two and three, and the remaining segments entirely covered with a dense bright fulvous scale-like pile; sixth segment bidentate at tip. Length .40 inch.

Hab.—Mexico, (Sumichrast). Four specimens.

Megachile addenda.—♀.—Form broad; black, shining, closely and finely punctured; face, apex of clypeus and cheeks rather densely clothed with griseous pubescence, long on cheeks beneath, on the vertex the pubescence is sparse, short and black; clypeus shining, strongly punctured; mandibles rugose, fringed beneath with long yellowish hair; thorax clothed with griseous pubescence dense on metathorax and pleura; mesothorax almost nude, having a scattered black pubescence on disk, the anterior and lateral margins with pale pubescence; tegulæ piceous; wings tinged with dusky, darker on apical margin; legs with short pale pubescence, that on tarsi beneath dense and yellowish; abdomen minutely punctured, clothed with short black pubescence, segments 2—5 rather deeply transversely depressed towards base and fringed at apex with a short dense white pubescence, first segment clothed with griseous pubescence; apical segment densely punctured, slightly excavate on each side before tip; ventral scopa dense and white, the last segment with short black hair. Length .52 inch.

♂.—Face and clypeus with long dense yellow pubescence; the pubescence of thorax behind and beneath longer than in ♀ and tinged with ochraceous; legs slender, the pubescence long, the tarsi which are simple fringed beneath with long yellowish pubescence, anterior coxæ each with a rather long black spine; abdomen narrower than in ♀, similarly sculptured and ornamented, but with longer pubescence on first segment, sixth segment depressed, prominent on basal middle, the apex transversely compressed and deeply emarginate in the middle, forming two broad slightly divergent teeth coarsely serrated on the edge; apical segment with a large acute central tooth and a short one on lateral margin; ventral segments fringed at apex with long whitish pubescence. Length .45—.50 inch.

Hab.—Mass., N. J., Ga., Ill., Col., Tex. Sixteen specimens. This resembles *bucephala*, but is much smaller, the head of ♀ smaller, the abdominal segments more deeply transversely depressed, etc.

Megachile montivaga.—♀.—Form rather narrow; black, opaque, densely punctured; face, sides of clypeus and cheeks with rather dense whitish, and the vertex with black pubescence; clypeus coarsely punctured; thorax behind and beneath with dense whitish pubescence, on mesothorax it is short, sparse, and black; wings tinged with dusky, dark on apical margin; legs with short pale pubescence, the tarsi slender, clothed beneath with yellow pubescence; abdomen with subparallel sides, finely not closely punctured, segments 2—4 with a transverse deeply impressed line near base, and together with the fifth segment fringed at apex with short white pubescence; sides of first segment clothed with long pale pubescence; apical segment very densely, minutely punctured, covered with a dense ochraceous pile; ventral scopa yellow. Length .50 inch.

♂.—The pubescence much longer and more dense, especially on face and clypeus where it is yellow, on vertex and mesothorax it is long and black; tarsi simple, slender, rufo-testaceous beyond first joint, anterior coxæ without spines; sixth segment of abdomen concave, with a slight prominence on basal middle, the apex transversely compressed and more or less emarginate medially; apical segment with a carina or short blunt tooth on each side and one on the middle. Length .35—.45 inch.

Hab.—Colorado, (Ridings, Morrison). Twenty specimens.

Megachile deflexa.—♂.—Form broad, parallel; black, opaque, finely and densely punctured; face and clypeus clothed with a long dense yellow pubescence, on cheeks it is white and on vertex sparing and mixed with black; mesothorax with a very short sparse black pubescence, while on the prothorax, metathorax and pleura it is long and pale ochraceous; tegulæ piceous; wings dusky at tips; legs fulvo-testaceous, clothed with pale pubescence, coxæ and four posterior femora black, anterior coxæ each with a short black spine, their tarsi simple; basal segment of abdomen and narrow apical margin of segments 2—5 clothed with pale ochraceous pubescence, base of these segments transversely depressed; sixth segment gradually narrowed to tip which is truncate and incurved, and clothed beneath with white pubescence. Length .55 inch.

Hab.—Kansas, (Ridings). One specimen. Easily recognized by the shape of sixth dorsal segment of abdomen.

Megachile texana.—♀.—Form broad, robust; black, finely and closely punctured; face, cheeks, thorax behind and beneath and basal segment of abdomen densely clothed with whitish pubescence, on vertex and disk of mesothorax and scutellum it is sparse, short and black; clypeus densely punctured, with short fuscous pubescence; wings dusky on apical margin; legs robust, with short pale pubescence, the tarsi broad at base, clothed beneath with dense yellow pubescence; abdomen broad, densely punctured, clothed with short black pubescence longer on lateral margin, segments 2—5 with a narrow fringe of white pubescence at tip, apical segment with a short, dense pale pile; ventral scopa pale yellowish-white, that on two apical segments black. Length .60 inch.

♂.—Form broad, parallel; head slightly broader than thorax, the face and clypeus with dense pale yellowish pubescence; anterior legs pale fulvous within, their coxæ each with a short black spine, their tarsi simple, slender, fringed beneath with long white pubescence; abdomen subquadrate, closely punctured, the segments much depressed at base and before apex; first segment clothed with pale pubescence, segments 2—5 with a short white fringe on depressed apical margins and more or less broadly banded at base with a dense pale pubescence, covering also the sixth segment, which is depressed, the apical margin coarsely serrate and deeply emarginate medially; apical segment bisinuate or indistinctly tridentate; ventral segments narrowly fringed at apex with white pubescence. Length .50 inch.

Hab.—Texas, (Belfrage). Seven specimens. The pubescence on the two apical segments of venter is entirely black.

Megachile generosa.—♀.—Form rather broad, subrobust; black, opaque, finely, not closely punctured; face, cheeks, thorax behind and beneath, and basal segment of abdomen rather densely clothed with white pubescence, that on vertex, mesothorax except sides and scutellum except behind, short, sparse and black; clypeus nude, shining, deeply punctured; mesothorax dull, with the punctures on disk sparse and fine; wings dusky on apical margin; legs with short pale pubescence, that on tarsi beneath dense and yellow; abdomen shining, very finely punctured, clothed with short black pubescence, segments 2—5 with a narrow white fringe on apical margin; apical segment depressed at tip, with a short dense pale pile; ventral scopa

white except on apical segment and at tip of preceding segment where it is black. Length .55—.60 inch.

Hab.—North Carolina, Georgia, (Morrison). Eight specimens. This is closely allied to *texana*, but less robust, the mesothorax less closely punctured and the pubescence on the penultimate ventral segment is almost entirely white, having only a few black hairs at tip.

Megachile pinguis.—♀.—Form unusually broad, short and robust; black, rather shining; head with the sides of face and cheeks clothed with pale pubescence, elsewhere it is black; clypeus densely punctured; thorax closely punctured, almost nude above, the pubescence being short sparing and black, behind and beneath it is dense and pale; scutellum with a few long black hairs; a small patch of pale hairs behind tegulæ; wings fuliginous on apical margin; legs with pale pubescence, on tarsi it is short and black except a pale fringe beneath on two anterior pairs; basal joint of the tarsi, especially the posterior pair, broad; abdomen short, broad, shining, clothed with short black pubescence, except on basal segment where it is long and pale; apical margin of segments 2—5 with a very narrow apical fringe of white pubescence; apical segment with a dense pale pile; ventral scopa whitish, the apical segment clothed with black hairs. Length .48 inch.

Hab.—Georgia, (Morrison). One specimen.

Megachile mendica.—♀.—Form broad, robust, black; head and thorax finely and very densely punctured; vertex shining; face, sides of clypeus, cheeks, thorax behind, at sides and beneath, and basal segment of abdomen densely clothed with whitish pubescence, which on vertex, mesothorax and scutellum is black; clypeus strongly not closely punctured; thorax opaque; wings dusky on apical margin; legs with pale pubescence, that on tarsi beneath yellow; abdomen short, broad, finely punctured, shining; clothed with short black pubescence, long on extreme sides of the apical segments, a narrow fringe of white pubescence on apical margin of segments 2—5 more or less interrupted in the middle of 2—4 and generally entire on five; apical segment opaque, very densely punctured and brownish; ventral scopa yellow, the pubescence on apical segment black. Length .45—.50 inch.

Hab.—Can., N. Y., Mass., Pa., Del., N. C., Ga., Fla., Ill. Twenty-four specimens.

Megachile relativa.—♀.—Form rather narrow, shining, black; head and thorax strongly not densely punctured; face, cheeks, thorax behind, at sides and beneath and basal segment of abdomen clothed with a long dense pale pubescence, long and black on vertex, mesothorax and scutellum; wings dusky on apical margin; legs slender, clothed with pale pubescence, that on tarsi yellow; abdomen shining, finely punctured, clothed with short black pubescence, segments 2—5 with a narrow apical fringe of yellowish pubescence, interrupted medially on two and three; apical segment yellowish-sericeous at tip, densely sculptured; ventral scopa dense and entirely yellow. Length .40—.45 inch.

Hab.—Can., N. Y., N. C., Ill., Col. Twenty specimens.

Megachile infragilis.—♂.—Form rather narrow, black; finely and very densely punctured, face, cheeks and thorax densely clothed with a long yellow or pale ochraceous pubescence, which on vertex and disk of mesothorax is fuscous; wings dusky at tips; legs slender, clothed with yellowish pubescence, tarsi simple, slender and rufo-testaceous at tips; abdomen clothed with long yellow or whitish pubescence on two basal segments, and fringed at apex with short yellow or whitish hairs, interrupted on middle of segments two and three; middle of segments 3—5 with short black hair; sixth segment depressed on apical middle, the tip transversely compressed, broadly rounded, sometimes subtruncate; sides of venter with long pale pubescence. Length .35—.40 inch.

Hab.—New York, (Comstock). This is narrower than *brevis*, and differs also by the apex of sixth abdominal segment being entire. The pubescence in fresh specimens is bright yellow.

Megachile petulans.—♂.—Form short, broad, robust; black, rather shining, closely and finely punctured, clothed with yellow pubescence, very dense on face and clypeus and moderately so on thorax behind and laterally, on cheeks and thorax beneath it is white, on vertex, mesothorax and scutellum mixed with black; head broad; a line of dense appressed ochraceous pubescence at base of scutellum; wings dusky at apex; legs slender, clothed with long pale pubescence, anterior coxæ each with a long black spine, their tarsi simple: abdomen quadrate, finely punctured, base of second and third segments deeply transversely depressed, first segment with long yellow pubescence, apical margin of segments 2—4 with a narrow fringe of same and base of the segments more or less ochraceous, sixth segment covered entirely with ochraceous, the apex broadly and deeply emarginate, the margin not serrate. Length .40 inch.

Hab.—North Carolina, Georgia, (Morrison). Eight specimens. Closely resembles *brevis* Say, but easily separated by the apex of sixth abdominal segment not having the edge serrate as in that species.

Megachile perbrevis.—♂.—Small, short, robust, black, densely and finely punctured, clothed with a yellow pubescence, long and dense on face, clypeus, thorax except above, and on base of abdomen, on the cheeks and thorax beneath it is white; head broad; disk of mesothorax almost entirely nude; wings faintly dusky on apical margin; legs slender, clothed with long pale pubescence, tips of tarsi testaceous, anterior coxæ each with a stout black spine, their tarsi simple; abdomen very short, quadrate, clothed with yellow pubescence, short and dense on apical margin of the segments; sixth segment with dense appressed ochraceous pubescence, the apical margin transversely compressed, notched medially and coarsely unevenly serrate on each side; apical segment carinate and slightly toothed medially; sides of venter with long white pubescence. Length .35 inch.

Hab.—Texas, (Belfrage). Three specimens.

Megachile mexicana.—♀.—Form broad, robust, black; face, cheeks beneath, thorax behind, laterally and beneath with dense white pubescence, that on vertex, mesothorax and scutellum black; mesothorax almost nude, opaque, finely and sparsely punctured; a narrow line on anterior margin of

mesothorax, and a line at base of scutellum ending each side in a spot behind tegulæ, of short dense appressed whitish pubescence; wings dusky at tips; legs robust, clothed with short pale pubescence, tarsi beneath with dense yellow pubescence, basal joint of two posterior pairs broad and flat; abdomen short and broad, very finely punctured, sides of basal segment, and narrow apical margin of segments 2—5 clothed with pale pubescence; apical segment covered with a pale ochraceous pile and with scattered short black pubescence; ventral scopa yellow, the apical segment with black hairs. Length .40 inch.

♂.—Small, head unusually broad, the face and clypeus with long dense yellow pubescence, on the vertex it is long sparing and black, and on cheeks white; antennæ as long as head and thorax; pubescence of thorax white, except on mesothorax and scutellum where it is black and long on the latter; tegulæ and legs brown, tarsi testaceous, anterior coxæ each with a stout spine, their tarsi simple, slender; abdomen quadrate, fifth segment flattened on each side of disk, deeply margined at apex, covered with a pale pile and with scattered black hairs; sixth densely pale golden yellow, the apex deeply emarginate, the edge without serrations; venter brown, the segments narrowly fringed at apex with white pubescence. Length .30 inch.

Hab.—Mexico, (Sumichrast). Sixteen specimens.

Megachile zapoteca.—♀.—Form rather broad, black, densely and finely punctured, subopaque; sides of face, sides of clypeus, cheeks, thorax behind, laterally and beneath, with long dense white pubescence, that on vertex, mesothorax and scutellum long and black; disk of clypeus with very short black pubescence; tegulæ piceous; wings dusky at tips, with a brassy reflection; legs with pale pubescence, that on tarsi golden-yellow; abdomen shining, clothed with short black pubescence, that on basal segment long and mixed pale and black, segments 2—5 with a narrow apical fringe of yellow hairs; ventral scopa dense and yellow. Length .40 inch.

Hab.—Mexico, (Sumichrast). One specimen.

Megachile tuxtla.—♂.—Robust, black, opaque; face and clypeus with long dense yellow pubescence, on the vertex black, and on the cheeks white, very dense and long beneath; antennæ nearly as long as head and thorax; thorax behind, laterally and beneath with long dense, pale ochraceous pubescence, on mesothorax and scutellum it is long and mostly black; tegulæ pubescent; wings dusky at tips; legs slender, with pale pubescence, all the tarsi slender; abdomen oblong-quadrate, first segment with long yellowish pubescence, segments 2—4 narrowly fringed at apex with yellow, fifth segment large, and with the sixth densely golden, clothed with sparse long black hair; apex of sixth segment with two rather long acute teeth. Length .40 inch.

Hab.—Mexico, (Sumichrast). Three specimens.

Megachile tepaneca.—♀.—Form broad, robust, black; face with mixed pale and black pubescence, that on cheeks entirely pale; middle of clypeus and space above smooth, shining and flattened; flagellum rufo-testaceous beneath; thorax as sides and behind with dense fulvous pubescence, beneath it is pale; mesothorax rather coarsely transversely sculptured, clothed with sparse black hair, scutellum more finely sculptured, with scattered long black hair; tegulæ and four posterior femora fulvous, anterior legs, and rest of four posterior legs brown, basal joint of posterior tarsi very broad, the intermediate

pair subdilated; wings tinged with yellow, dusky on apical margin; abdomen short, broad at base, finely not closely punctured, shining, subiridescent, with short black hair, basal segment with long thin yellowish pubescence, lateral apical margin of segments 2—5 with a narrow pale fringe; apical segment dense pale ochraceous; ventral scopa black, mixed with pale on middle. Length .43 inch.

Hab.—Mexico, (Sumichrast). Two specimens.

Megachile montezuma.—♀.—Form broad, robust, black; head, thorax and base of abdomen rather densely pubescent, pale on face, cheeks and thorax beneath, and fulvous, more or less mixed with black, on vertex, thorax above and behind and base of abdomen; a small triangular smooth flat space above clypeus; flagellum rufo-testaceous beneath; mesothorax very finely and densely punctured; tegulæ fulvous; wings tinged with yellow, dusky on apical margin; legs black or piceous, clothed with pale pubescence, yellow on tarsi: abdomen clothed with short black pubescence, long on extreme sides, apical margin of segments 2—5 with a fringe of short dense yellow pubescence; apical segment densely ochraceous; ventral scopa fulvous, that on apical segments mixed with black on the extreme sides. Length .43 inch.

♂.—Small, short, robust, head broad, the pubescence longer than in ♀, that on face, clypeus and cheeks long, very dense and pale yellow; antennæ reaching to base of abdomen; wings strongly tinged with yellow; legs piceous, clothed with long pale pubescence, anterior tibiæ broadly dilated, their tarsi slender, simple; abdomen short, quadrate, the apical fasciæ paler than in ♀, sixth segment sinuate at tip. Length .30 inch.

Hab.—Mexico, (Sumichrast). Three specimens. The ♀ resembles that of *azteca*, and the ♂ is remarkable for the dilated anterior tibiæ.

Megachile toluca.—♂.—Form short, robust, black, opaque; head broader than thorax, the pubescence on face and cheeks is long dense and yellow, that on vertex fuscous, and that on cheeks white and very long beneath; antennæ long, flagellum dull testaceous beneath; thorax and base of abdomen with dense fulvous pubescence, the former on sides and beneath pale, that on disk of mesothorax short and thin, the surface very densely sculptured; tegulæ and legs fulvous, coxæ and trochanters black; anterior coxæ each with an acute black spine, their tarsi slender, simple, fringed beneath with long pale pubescence; wings faintly dusky on apical margin; abdomen short, quadrate, segments 2—5 fringed at apex with dense yellow pubescence, base of fifth segment and the sixth entirely densely ochraceous, the apex of the latter transversely pinched, entire, immediately beneath the tips are two short acute distant teeth. Length .35 inch.

Hab.—Mexico, (Sumichrast). One specimen.

Megachile Sumichrasti.—♂.—Robust, black, opaque; head with long yellowish pubescence more or less mixed with black, that on base of clypeus and a small tuft on each side of face entirely black; thorax behind and laterally clothed with long dense black pubescence, that on mesothorax short and fulvous, that on thorax beneath pale; tegulæ pale fulvous; wings yellow, the costal vein orange yellow, apical margin dusky; legs black or piceous, with mixed black and pale pubescence, anterior coxæ each with a stout black spine, their femora fulvous within, their tarsi slender and simple; abdomen opaque,

the two basal segments with black pubescence, the apical segments with dense golden pubescence; lateral apical margin of second segment and apical margin of third and fourth segments golden-yellow; apex of sixth segment slightly notched medially. Length .35 inch.

Hab.—Mexico, (Sumichrast). Two specimens.

Megachile chichimeca.—♀.—Form narrow, black, subopaque, densely and finely punctured; sides of face, cheeks, narrow line on anterior margin of mesothorax, spot on each side behind tegulæ, line behind scutellum, oblique line on sides of metathorax and the tubercles, clothed with dense white pubescence; wings faintly dusky on apical margin and fuliginous on apical costal margin; legs with pale pubescence, basal joint of posterior tarsi broad; abdomen with a narrow pale fringe on apex of segments 1—5, apical segment with dense pale pile; ventral scopa yellowish-white. Length .38—.42 inch.

Hab.—Mexico, (Sumichrast). Two specimens.

Megachile cœlioxoides.—♂.—Black, rather shining, finely not closely punctured; head large, broad; face and apex of clypeus with long dense yellow pubescence, that on base of clypeus black, that on cheeks whitish; mandibles, tegulæ and legs fulvo-ferruginous; mesothorax and scutellum with sparse black pubescence; a narrow line on anterior margin of mesothorax, a spot on each side behind tegulæ, and a line behind scutellum extending on each side behind wings, of dense white pubescence; wings fuliginous, black on costal margin; coxæ, trochanters and base of femora more or less black, anterior coxæ each with a long black spine, all the tarsi slender; abdomen narrow, smooth, shining, sparsely punctured, lateral apical margin of the segments narrowly fringed with white, sixth segment subrugose, clothed with black hair, straight, not at all incurved, the apex truncate. Length .40 inch.

Hab.—Mexico, (Sumichrast). One specimen. This has much the general appearance of a *Cœlioxys*.

Megachile zaptlana.—♀.—Form narrow, elongate, opaque black, very densely and minutely punctured; sides of face, of clypeus and the cheeks clothed with dense white pubescence, that on middle of clypeus, between antennæ and on vertex sparse and black; thorax with whitish pubescence, very short and sparse on mesothorax, slightly mixed with black on scutellum; line over tegulæ, line at base of scutellum, and oblique line on sides of metathorax of dense white pubescence; wings dusky at tips and fuliginous on apical costal margin; legs with short pale pubescence, yellow on tarsi beneath; abdomen elongate narrow, sides parallel, sides of first segment clothed with whitish pubescence, and segments 2—5 narrowly fringed at apex with white, elsewhere the segments above have a scattering black pubescence; apical segment with pale pile; ventral scopa yellowish-white, apical segment with short black hair. Length .45—.55 inch.

Hab.—Mexico, (Sumichrast). Five specimens.

Megachile abacula.—♀.—Form narrow, parallel, black, subopaque, closely and strongly punctured; sides of face, cheeks, patch beneath tegulæ, spot above and behind tegulæ, and oblique line on each side of metathorax, of dense white pubescence; on vertex, mesothorax and scutellum the pubescence is sparse and black, and on pleura and beneath it is white; tegulæ brownish; wings faintly dusky on apical margin; legs clothed with pale pubescence;

abdomen with parallel sides, base of segments three, four and five entirely densely fulvo-ochraceous, lateral apical margin of segments 1—3 with a narrow white fringe; venter whitish, the apical segment with short black hair. Length .35 inch.

♂.—Very much like the ♀, with the face and clypeus more densely pubescent; the tarsi are all slender; the apex of abdomen incurved, the fourth and fifth segments entirely ochraceous, the apex of sixth segment slightly emarginate medially. Length .30—.35 inch.

Hab.—Mexico, (Sumichrast). Twelve specimens.

Megachile ixucara.—♀.—Form narrow, parallel, black, head and thorax closely and strongly punctured; the face and cheeks with pale pubescence, mixed with black on the clypeus, between the antennæ and on vertex it is long and black; clypeus short, broad, the apex broadly arcuate; the pubescence on mesothorax and scutellum black, on lateral margin of mesothorax, on basal margin of scutellum, on metathorax, and on pleura it is white; tegulæ piceous; wings faintly dusky at tips; legs slender, brown, tarsi with yellowish pubescence; abdomen narrow, convex with parallel sides, basal segment with long pale pubescence, short and dense on lateral apical margin; base of second and third segments and the two apical segments entirely densely fulvous; apical margin of segments 2—4 narrowly fringed with yellow; ventral scopa yellow; fulvous at tip. Length .40 inch.

♂.—Face and clypeus with long dense black pubescence, that on middle of face and tip of clypeus pale; wings fuscous, pale at base; legs slender, simple, the tarsi pale brown; abdomen densely golden-ochraceous on three apical segments, the sixth slightly notched on apical middle. Length .35 inch.

Hab.—Mexico, (Sumichrast). Two specimens.

Ceratina mexicana.—♀.—Black, shining, slightly tinged with bronze; head strongly punctured; an elongate mark on clypeus and a dot on each extreme side, white or yellowish; labrum brownish, clothed with pale pubescence; flagellum pale brown beneath; mesothorax sparsely and finely punctured, smooth and polished on the disk, and with five finely impressed longitudinal lines; pleura finely and densely punctured; tegulæ fulvo-testaceous; wings subhyaline, sometimes pale fuscous, darker at tips, nervures pale brown; legs brown or piceous, clothed with a whitish pubescence, most dense on posterior pair, tarsi beneath with golden hair, anterior knees with two whitish spots; abdomen dark olive-green, golden at tip, three basal segments shining, finely punctured, apical segments densely and confluently sculptured, the extreme apex produced into a short obtuse spine; venter with whitish pubescence. Length .40—.45 inch.

♂.—Spot on clypeus confluent with small lateral spots and also with short line on lower anterior orbits, labrum and spot at base of mandibles white or yellowish; face and scutellum more or less strongly tinged with green; posterior legs much less pubescent than in ♀; apical segment of abdomen with a short subacute spine at tip. Length .35—.40 inch.

Hab.—Mexico, (Sumichrast). Eleven specimens.

Ceratina azteca.—♀.—Black, tinged with blue or green; head coarsely punctured; clypeus with an obconic whitish spot; labrum with golden pubescence; flagellum pale beneath; mesothorax sparsely and strongly punctured,

smooth on disk, and with five finely impressed longitudinal lines; scutellum finely and closely punctured, and with the metathorax and pleura strongly tinged with green and more or less clothed with pale pubescence; metathorax smooth, slightly roughened at extreme base; tegulæ piceous; wings tinged with dusky, nervures black; legs piceous, clothed with pale pubescence, most dense on posterior pair; abdomen much narrowed towards base, strongly tinged with green, especially at tip, base of segments 2—4 æneous, base of two densely, and three and four sparsely punctured, the two apical segments densely roughened, apex pointed in the middle and fringed with long pale pubescence. Length .45 inch.

♂.—Anterior margin of clypeus, dilated upwards on disk, dot on each side of face, labrum and spot at base of mandibles, whitish; face strongly tinged with blue; thorax thinly clothed with pale pubescence, postscutellum and metathorax blue-green, mesothorax closely punctured; tegulæ pale piceous; abdomen with first segment and apical margin of following segments blue, basal margin of the segments smooth and impunctured; apical segment with an acute spine at tip, the lateral margin reflexed; venter blue. Length .40 inch.

Hab.—Mexico, (Sumichrast). Two specimens.

Ceratina ignara.—♀.—Shining black, head and thorax strongly tinged with steel-blue, the abdomen with olive-green, sometimes golden at apex; head larger than usual, strongly punctured, cheeks smooth and polished; clypeus with an elongate yellowish mark, sometimes reduced to a dot or line; flagellum subtestaceous beneath; thorax finely punctured, disk of mesothorax smooth and polished, and with five finely impressed longitudinal lines; extreme base of metathorax above depressed and rugose, the pubescence of thorax short, thin and pale; tegulæ piceous; wings more or less strongly fuscous, generally paler at base, nervures black; legs with pale pubescence, a yellowish dot at extreme base of all the tibiæ; abdomen shining, narrowed towards base, first segment polished, impunctured, second, third and fourth minutely punctured, apical segments densely roughened, the tip pointed and fringed with long pale hair; venter green. Length .30—.35 inch.

Hab.—Mexico, (Sumichrast). Eight specimens.

Ceratina cobaltina.—♂.—Brilliant dark blue, changing in certain lights to green and purple; head coarsely punctured; spot on lower side of face, apical margin of clypeus, dilated medially, labrum, and mandibles except tips, white; antennæ black, the flagellum brownish beneath; posterior margin of head acutely carinate; thorax finely and closely punctured, sparsely so on pleura, base of metathorax minutely sculptured, a little pale pubescence on each side of scutellum and of metathorax; wings hyaline, faintly dusky at tips, veins fuscous; legs tinged with brown, thinly clothed with pale pubescence, anterior knees and stripe on their tibiæ white; abdomen strongly tinged with purple, the base of second and third segments with a golden reflection in certain lights, finely punctured, the apical segments coarsely sculptured and with a scattered pale pubescence; apical segment obtusely bidentate at tip. Length .32 inch.

Hab.—Mexico, (Sumichrast). One specimen. A very pretty species, resembling *cyaniventris* Cress., (from Cuba), in color, but is much larger.

Xylocopa azteca.—♀.—Black; the pubescence of head entirely black; clypeus flat, finely and sparsely punctured; thorax clothed with sooty pubescence, slightly mixed with pale, that on the sides white and that beneath black, disk of mesothorax smooth and polished; wings fuscous; legs clothed with black pubescence, that on the four posterior tibiæ and tarsi exteriorly dense pale ochraceous; abdomen with the first and sides of second and third segments clothed with a short pale sericeous pubescence, the apical margin of segments two and three with a narrow fringe of dense pale ochraceous pubescence, broadly interrupted medially; three apical segments entirely black. Length .65 inch.

Hab.—Mexico, (Sumichrast). One specimen.

Exomalopsis limata.—♀.—Shining black; head, thorax and extreme base of abdomen clothed with short black pubescence, that on sides of face and narrow anterior margin of mesothorax white, and on cheeks pale; face and clypeus flat; labrum with fulvous hair; flagellum beneath pale testaceous; disk of mesothorax and of scutellum smooth, polished and impunctured; wings fuscous, paler on apical margin; legs with black pubescence, posterior tibiæ and tarsi with a long dense fulvous pubescence; abdomen smooth and polished, impunctured, apex with pale fulvous pubescence at sides, apical margin of segments 3—5 with a very narrow fringe of white pubescence, slightly interrupted on middle of third; ventral segments fringed with long fuscous hair. Length .40 inch.

Hab.—Mexico, (Sumichrast). One specimen.

Exomalopsis mexicana.—♀.—Black, shining; head, thorax and legs clothed with a griseous pubescence, long and erect on occiput, that on the vertex, mesothorax and scutellum mostly black; sides of face, line on collar, line behind tubercles and line behind scutellum of dense pale ochraceous or whitish pubescence; flagellum fulvo-testaceous beneath; tegulæ piceous; wings hyaline, dusky on apical margin, second submarginal cell receiving the recurrent nervure very near the tip; posterior tibiæ and tarsi with a dense floccus of ochraceous pubescence, that on tarsi above sooty-black; abdomen smooth and shining, the base and extreme sides thinly clothed with pale pubescence, base of segments three and four with a band of dense appressed pale ochraceous or white pubescence, sometimes narrowed medially, the fifth segment fringed with long ochraceous pubescence; sometimes the second segment has an oblique line of pale pubescence on each side; ventral segments fringed with long griseous hair. Length .35 inch.

Hab.—Mexico, (Sumichrast). Three specimens.

Exomalopsis otomita.—♀.—Black, clothed with a short black or fuscous pubescence, that on face and cheeks intermixed with pale; on each side of face a small patch of dense white pubescence; flagellum dull testaceous beneath; tegulæ piceous; wings yellowish-fuscous, darker on apical costal margin, stigma and nervures pale brown, second submarginal cell broad, receiving the recurrent nervure a little beyond the middle; posterior legs with a dense floccus of long sooty pubescence, with a patch of ochraceous beneath, tips of tarsi pale; abdomen shining, with a slight bluish iridescence, base and sides of first segment thinly clothed with a pale pubescence, that on the three apical segments and venter ochraceous. Length .30 inch.

Hab.—Mexico, (Sumichrast). One specimen.

Exomalopsis tepaneca.—♀.—Black, clothed with a short black pubescence, that on sides of face and cheeks more or less whitish; clypeus with scattered punctures; labrum with fulvous hair; flagellum pale fulvous beneath; mesothorax finely punctured; tubercles fringed posteriorly with pale pile; wings fusco-hyaline, stigma and nervures pale, second submarginal cell receiving the recurrent nervure very near the tip; legs with black pubescence, posterior pair with a floccus of long dense sooty pubescence, with a patch of ochraceous beneath, tips of tarsi pale ferruginous; abdomen polished, with a dark bluish iridescence, the three apical segments and venter clothed with whitish pubescence, a suboblique line of dense whitish pubescence on sides of third segment; venter pale brown at base. Length .30 inch.

Hab.—Mexico, (Sumichrast). One specimen.

Exomalopsis? mellipes.—♀.—Black; head thinly clothed with a griseous pubescence, tinged with yellow on occiput; face flat, broad between the eyes, ocelli in a straight line, clypeus flat, nude, shining, feebly punctured, labrum and mandibles except tips dull fulvous; antennæ short, pale fulvo-testaceous, first joint long, slender, cylindrical; thorax above clothed with yellow pubescence, long on scutellum, shorter and thin on mesothorax which is opaque, on metathorax and pleura the pubescence is pale; tegulæ honey-yellow; wings yellow-hyaline, nervures honey-yellow, marginal cell broad, long, oblique at tip, second submarginal cell small, quadrate, rather more than one-fourth the length of first, the third a little shorter than first, broadly rounded at tip and narrowed nearly one-third towards marginal; legs honey-yellow, the tibiæ darker above, the pubescence pale, posterior tibiæ and tarsi with a floccus of long, dense beautifully plumose pale pubescence, that on outside tipped with sooty-black, that on the underside short and fulvous; abdomen broad-ovate, depressed, first segment at base and sides dull honey-yellow; a curved band on the middle of segments one and two, and a broader band at base of 3—5 of short appressed yellow pubescence; apex with fuscous, that on the sides long and pale; venter dull honey-yellow at base, fuscous at tip. Length .35 inch.

Hab.—Mexico, (Sumichrast). Two specimens. This has not the general appearance of an *Exomalopsis*, but the form of the antennæ and neuration of the wings are much as in that genus; the floccus on posterior legs is not so dense and the pubescence is plumose.

Tetrapedia maura.—♀.—Black, shining, the pubescence black, that on face and posterior orbits white; clypeus with a few scattered shallow punctures; antennæ varied with fulvous at base, the flagellum beneath dull testaceous; mesothorax finely and sparsely punctured, disk more or less pubescent, scutellum with long pubescence; wings fuliginous, much paler at apex; legs clothed with black pubescence, that on posterior tibiæ and tarsi long and dense, and that on tips of posterior tibiæ exteriorly yellow or yellowish-white, anterior tarsi with a stout tooth at base exteriorly, spurs of intermediate tibiæ short, robust, finely pectinate, hooked at tip, those of the posterior tibiæ longer, very robust and more distinctly pectinate; abdomen black, polished, the sides, apex and apical margin of ventral segments fringed with long black pubescence. Length .35—.45 inch.

♂.—Sides of face with a patch of silvery pubescence; tegulæ and legs rufo-

piceous, anterior femora beneath produced into a large obtuse spine, the base of their tarsi deformed; intermediate tibiæ and tarsi dilated, clothed with black pubescence, that on tips of tibiæ pale sericeous; posterior coxæ and trochanters each with a spine beneath, their femora silvery sericeous within, their tibiæ constricted at base and dilated towards tip, with a tuft of white pubescence at tip as in ♀, basal joint of their tarsi distorted, fringed on outer edge with black pubescence, inner edge compressed, ferruginous, with a short hooked tooth near base, the tip produced and twisted; abdomen piceous, the apex with black pubescence, third ventral segment clothed and fringed with whitish pubescence. Length .35 inch.

Hab.—Mexico, (Sumichrast). Sixteen specimens.

Tetrapedia lugubris.—♂.—Black, shining, the pubescence black; apical margin of clypeus, labrum except disk and the mandibles more or less, dull yellow; sides of face, labrum and cheeks with a silvery sericeous pubescence; antennæ piceous, the flagellum dull testaceous beneath; mesothorax nude, subopaque, disk with a well impressed longitudinal line, and a short one over tegulæ; prothorax piceous, prominently transversely constricted; scutellum with short black pubescence; the pubescence on sides of metathorax and pleura silvery-white in certain lights; tegulæ piceous; wings dark fuliginous, the apex pale yellowish-fuscous, nervures yellow; legs rufo-piceous, clothed with black pubescence, simple, basal joint of tarsi flat, dilated, fringed behind with long black pubescence, tips of posterior tibiæ with a patch of white pubescence; abdomen smooth and polished, the sides and apex fringed with long black pubescence, that at apex mixed with whitish; ventral segments fringed with black pubescence; a dot on each extreme sides of fourth and fifth dorsal segments, and the third or fourth ventral segments pale testaceous. Length .40 inch.

Hab.—Mexico, (Sumichrast). Two specimens. This has much the general appearance of *maura*, but the legs are simple and not deformed as in the ♂ of that species.

Tetrapedia mœsta.—♀.—Black, shining, the pubescence black; face and cheeks silvery-sericeous, labrum fringed with golden pubescence, clypeus with shallow sparse punctures, the face above antennæ flat, smooth and polished, impunctured; antennæ piceous, flagellum dull testaceous beneath; mesothorax opaque, a well impressed longitudinal line on anterior middle and a very short one on each side over tegulæ; sides of scutellum with a patch of short black pubescence; tegulæ piceous; wings fuliginous, apex beyond third submarginal cell subhyaline, second submarginal cell receiving the recurrent nervure between middle and apex, the third submarginal narrowed nearly one-half towards marginal; legs rufo-piceous, the pubescence entirely black, basal joint of anterior tarsi short and broad, spurs of intermediate tibiæ long and simple, hooked at tip, those of posterior tibiæ long, slender and white; abdomen piceous or black, smooth and polished, apex clothed with black pubescence, ventral segments 2—4 fringed with long white hair. Length .30 inch.

♂.—Triangular mark on sides of face, clypeus, spot above, labrum, mandibles except tips and scape beneath, yellowish-white; tips of tarsi fulvo-testaceous, spurs of posterior tibiæ more or less pale, sometimes brown, basal joint of four posterior tarsi short, broad and fringed behind with long black hair. Length .35 inch.

Hab.—Mexico, (Sumichrast). Six specimens. The pubescence of the legs is entirely black.

Tetrapedia apicalis.—♀.—Very much like *mæsta* ♀, but differs as follows: the face above antennæ is slightly prominent medially and punctured; the mesothorax has three finely impressed longitudinal lines on anterior middle; the pubescence on sides of metathorax is more or less pale; the wings are more broadly whitish-hyaline at tip, the second submarginal cell receiving the recurrent nervure at the tip; the spurs of posterior tibiæ are black; the abdomen is sometimes rufo-testaceous at base, and the fringe at apex of fifth dorsal segment is tipped with cinereous. Length .30 inch.

Hab.—Mexico, (Sumichrast). Three specimens.

Tetrapedia terminalis.—♀.—Very much like *apicalis* but differs as follows; the wings are whitish-hyaline beyond the second submarginal cell, the third more narrowed towards the marginal, the abdomen shorter and broader, fulvo-testaceous at base, the two apical segments above and beneath fringed with fulvous pubescence. Length .30 inch.

Hab.—Mexico, (Sumichrast). One specimen.

Tetrapedia fraterna.—♂.—Black, shining, the pubescence black, that on the face, labrum and cheeks silvery-white; narrow orbital line on face, one on lower posterior orbits, clypeus, transverse line above, labrum, mandibles except tips, scape beneath, line on collar, dot on tegulæ anteriorly, dot on four anterior knees, and tips of tarsi, all yellowish-white; face above antennæ somewhat prominent medially and punctured, clypeus and middle of face beneath antennæ with large, rather deep punctures; flagellum dull testaceous beneath; mesothorax smooth and shining; wings fuscous, apex broadly hyaline, second submarginal cell receiving the recurrent nervure between middle and apex; legs clothed with black pubescence, basal joint of tarsi broad and fringed behind with rather long dense black pubescence, tibial spurs slender, black; abdomen piceous, smooth and polished, the pubescence at apex more or less intermixed with pale; venter with pubescence pale, the second and third segments more or less marked with whitish. Length .30 inch.

Hab.—Mexico, (Sumichrast). Two specimens.

Tetrapedia calcarata.—♀.—Black, the abdomen flavo-testaceous, shining; head and thorax sometimes more or less varied with brown; sides of face and cheeks covered with a rather dense silvery sericeous pile; antennæ dull ferruginous beneath; metathorax and pleura with a fine silvery sericeous pile; on each extreme side of base of scutellum a small pale spot; tegulæ piceous; wings yellowish subhyaline, nervures and stigma pale brown, second submarginal cell receiving the recurrent nervure near the tip; legs rufo-fuscous, the pubescence black, tibial spurs slender, white; abdomen sometimes slightly obfuscated or discolored towards apex, the pubescence pale, with a slight admixture of black on apical segments. Length .35 inch.

♂.—Sides of face, more or less, narrow posterior orbits, clypeus except sometimes the base, generally a dot above, labrum, mandibles except tips, and line on scape beneath, yellowish-white; legs pale brown, simple, the pubescence black, tibial spurs white; abdomen colored as in ♀. Length .30—.35 inch.

Hab.—Mexico, (Sumichrast). Ten specimens.

Revision of the species of LISTROCHELUS of the United States.

BY GEORGE H. HORN, M. D.

THE present essay is intended as the commencement of a work which has long seemed necessary, a new revision of our Melolonthidæ. Since the first revision, (Leconte, Journ. Acad. Ser. 2, vol. ii, 1856), some few new species have been described, a few then unknown recognized, some synonymy corrected, while many new species have been discovered and above all much larger series of all accumulated. These facts together with the additional knowledge acquired in the meantime render the labor somewhat easier, on the one hand, while the increase in the number of the species renders the whole mass rather less amenable to classification by the almost inevitable occurrence of exceptional forms.

At this point I may mention that the types in the cabinet of Dr. Leconte have been freely at my command, and that Mr. Ulke of Washington, has also loaned his material which has been extremely useful, he having in several species the sex not existing in either Leconte's or my own cabinet.

In beginning a study of any tribe of Coleoptera the most important work is the generic separation of the mass of species and a determination of the value of the genera themselves.

The genuine Melolonthini have been divided into three groups by the following table:

Side pieces of metathorax narrow;
  Labial palpi on the under surface of the ligula.....RHIZOTROGI.
  Labial palpi at the sides of the ligula.....TOSTEGOPTERÆ.
Side pieces of metathorax wide.....MELOLONTHÆ.

In regard to the difference of position of the palpi in the first two tribes above named, I can only say, that after a dissection of the mouth of *Tosteyoptera* and *Lachnosterna* I can find no appreciable difference. The group therefore fails and with it the genus which must take its place with the Lachnosternæ in the position originally assigned to it by Dr. Leconte.

Next in order we have the group Rhizotrogi, containing five genera separated in the following manner:

Claws never serrate, with a single tooth beneath.
  Ligula deeply emarginate.
    Antennæ 10-jointed.....**Eugastra.**
    Antennæ 9-jointed.....**Endrosa.**
  Ligula nearly truncate.
    Labrum bilobed.....**Lachnosterna.**
    Labrum concave, not bilobed.....**Gynnis.**
Claws more or less serrate, sometimes toothed.....**Listrochelus.**

The emargination of the ligula, as far as its use for generic separation is concerned, is not a valid character, very many well known and acknowledged species of *Lachnosterna* possess it in a varying degree from a feeble notch to a well defined emargination. The species of *Eugastra* must therefore take place in Lachnosterna near *farcta* and *lanceolata*. The two species of *Endrosa* take remote places in *Lachnosterna; quercus* as a distinct group near *submucida; volvula* near *frontalis* where Dr. Leconte originally intended to place it. (Synopsis p. 239). *Gynnis* is based on a species with the labrum concave and not bilobed. It will be necessary merely to examine the labrum of the species of the *longitarsis* group of Lachnosterna to become convinced not only that the character has no value but also that the species (*debilis*) belongs there. An examination of the labrum of *glabripennis* might also add weight to the above.

Having thus rather summarily united five genera by the suppression of four it becomes necessary to defend the sixth, which, from the characters given in the books, seems to have the least claim of all to be retained.

LISTROCHELUS Blanch.

Head with a carina on the vertex extending from one side to the other slightly posterior to the anterior margin of the eye. Free angle of coxal plate acute and slightly prolonged. Claws frequently pectinate or serrulate.

These three characters or any two of them together serve to separate *Listrochelus* from *Lachnosterna*.

The carina on the vertex seems to be the most important, and is absent entirely in one species only (*senex*), and may be partially obliterated at its middle but visible at the sides. This carina is not of the same character as that seen in *Aplidia* where it is frontal and as far as can be seen merely a matter of sculpture or ornamentation, while the carina of *Listrochelus* is so placed as to restrict the retractile

capability of the head, for, when the head is withdrawn it rests against the anterior margin of the thorax.

The prolongation of the free angle of the coxal plate is a constant character in the present genus and singularly it is present in *Aplidia* also. In all our *Lachnosternæ* the angle is at most rectangular, sometimes obtuse never prolonged.

The pectination of the claws although not by any means constant is peculiar to the genus. The tables of the two sexes which follow give the details in brief. In those species in which the claws are decidedly pectinate and not merely serrulate, the claw is stout and its lower edge is double, or rather there are two edges separated by a deep groove; these are both pectinate, the proximal side of each claw, or that which is nearest to its fellow, has the edge which is most feebly pectinate, the outer edge being most strongly pectinate and bearing the tooth when it exists. This double pectination is peculiar to the male. In the females of these males there may be seen traces of the double edge but never serrulate or pectinate. One species has strongly pectinate claws with the pectination single, that is, from one margin only. The other peculiarities of the claws are spoken of at sufficient length in the descriptions.

The antennæ are always 10-jointed, the joints 3—7 varying considerably in length in the different species. I have not mentioned these variations because I have little faith in their constancy. There are now twelve species in our fauna, five of which are mentioned here for the first time, of the eight previously known one has been suppressed.

The accompanying tables have been prepared at the cost of considerable time and labor and show a remarkable parallelism. They have been arranged for each sex in such a manner that the more specialized types as indicated by the structure of the claws, begin the table, each succeeding species showing a regular gradation from this through the forms of claws of other genera to the simple type of Scarabæide claw, a character of rare occurrence among the Rhizotrogi.

A supplementary table is also given, the use of which will be seen, it contains those species not in *both* the sexual tables.

Table for the distinction of known males.

I.—Claws of anterior and posterior tarsi pectinate.

Claws all pectinate without tooth.

Pectination arising from a double margin. Thorax sparsely punctured..... **disparilis.**

Pectination from a single margin only. Thorax very densely punctured..... **puberulus.**

Anterior outer claw toothed and pectinate.
Outer anterior claw with a feeble tooth at middle. Posterior tarsi short and densely pubescent beneath ..... **scoparius.**
Outer anterior claw toothed near the tip. Posterior tarsi long and normally hairy.
Tooth of anterior claw large. Posterior claws very distinctly pectinate..... **mucoreus.**
Tooth of anterior claw small. Posterior claws very feebly pectinate..... **obtusus.**
II.—Claws not pectinate, rarely feebly crenulate, always with a small tooth at middle.
Thorax opaque.. ..... **opacicollis.**
Thorax more or less shining.
Head cribrately punctured. Thorax coarsely and anteriorly densely punctured..... **sociatus.**
Head coarsely, not very densely punctured. Thorax sparsely and not conspicuously punctured..... **falsus.**
III.—Claws similar on all the tarsi and absolutely simple..... **fimbripes.**

The following species are not found in the above table no males being known, *densicollis*, *senex*, *timidus*.

Table for the distinction of known females.

I.—Anterior claws with a strong tooth near the tip, serrulate posteriorly.
Posterior claws similar, each dentate at middle and serrulate at base.
Pygidium transversely impressed near the tip. Front nearly flat.
Margin of pygidium at tip prolonged..... **disparilis.**
Margin at tip not prolonged..... **scoparius.**
Pygidium slightly gibbous near the tip. Front impressed. **densicollis.**
Posterior claws dissimilar, the inner serrulate, the outer dentate and serrulate.
Pygidium rather flat, a fine impressed line at middle near the tip, margin at apex prolonged..... **mucoreus.**
II.—Claws with a small tooth at middle and at most obsoletely serrulate at base.
Thorax opaque..... **opacicollis.**
Thorax shining.
Thorax coarsely punctured, more densely in front.
Margin of thorax strongly crenulate..... **sociatus.**
Margin of thorax entire..... **timidus.**
Thorax sparsely punctured over entire surface.
Pygidium oval at tip..... **falsus.**
Pygidium truncate at tip..... **fimbripes.**
III.—Claws absolutely simple on all the tarsi.
Pygidium without marginal line. Hind tarsi long..... **senex.**

Two species *obtusus* and *puberulus* do not appear in the above table, their females being unknown.

The following table is based on characters not sexual and is given merely to attempt to fill the blanks which have of necessity occurred

in the two tables which precede, as it may happen that some cabinet will contain a male or a female not in the appropriate table, but which may be already known only in the opposite sex.

Front rather deeply impressed above the frontal suture.....**densicollis.**
Front not impressed.
Metasternum rather densely punctured and with long dense pubescence.
Thorax very densely and coarsely punctured.....**puberulus.**
Thorax rather sparsely punctured .....**obtusus.**
Metasternum sparsely punctured at least at middle, pubescence sparse.
Thorax unevenly punctured, dense along the apex, pygidium coarsely punctured.....**timidus.**
Thorax with large punctures very unequally placed, pygidium nearly smooth.....**senex.**

Of the above species the males only are known of *puberulus* and *obtusus*, and the females only of *densicollis*, *timidus* and *senex*.

L. disparilis n. sp.—Subcylindrical, moderately robust, brownish, moderately shining, very faintly pruinose, surface sparsely clothed with very short pubescence. Head densely and coarsely punctured, frontal suture not impressed, clypeus transverse, subtruncate in front with broadly rounded angles and narrowly reflexed margin. Thorax more than a half wider than long, narrower in front than at base, sides anteriorly moderately arcuate, posteriorly distinctly sinuate, hind angles rectangular, margin coarsely crenulate and sparsely fimbriate with yellowish hairs; disc moderately convex, rather coarsely and irregularly but not densely punctured. Elytra coarsely but not deeply punctured, sutural costa moderately distinct, disc faintly subcostate, the inner more distinct, margin fimbriate. Body beneath moderately densely clothed with long yellowish hair. Abdomen sparsely punctate and with very short hair. Length .72 inch; 18 mm.

Male.—Club of antennæ longer than the funicle. Abdomen slightly flattened at middle, last two segments with an impressed line at middle, last ventral very slightly notched at middle. Pygidium convex, coarsely and very sparsely punctured near the tip, more closely and more finely at base. Anterior claws similar, each pectinate along a double margin and with one of the pectinations at middle somewhat longer and stouter than the others. Middle claws similarly pectinate but without any larger pectination. Posterior claws pectinate in the same manner as the anterior claws. Spurs of hind tibiæ slender, acute and similar, the outer one-third longer. Inner side of posterior tibiæ with a few stiff hairs.

Female.—Club of antennæ longer than half the funicle. Abdomen convex at middle, last ventral more coarsely punctured. Pygidium sparsely punctate, broadly transversely impressed near the tip, apical margin slightly prolonged. Anterior claws similar, each serrulate and with a strong acute tooth at middle. Middle and posterior claws similarly formed. Spurs of posterior tibiæ rather broader than in the male, slightly arcuate, and with a distinct pellucid margin. The claws of the female are also distinctly pectinate along a double margin, the tooth arising from that margin most distant from the other claw.

This species has entirely the facies of a Lachnosterna of the *fusca*

group, and is consequently rather unlike the other members of the genus. Its peculiar sexual characters will enable it to be distinguished from any other species.

Occurs in Colorado, New Mexico and Arizona.

L. puberulus Lec. New Species, 1863, p. 78.—Oblong oval, brownish ferruginous, surface not pruinose, sparsely clothed with very short erect hair. Head densely and coarsely punctured, frontal suture finely impressed, front flat, clypeus transverse, angles broadly rounded, at middle feebly emarginate, margin moderately reflexed in front. Thorax one-half wider than long, narrower in front than base, sides obtusely subangulate, margin not crenulate, moderately densely fimbriate, disc moderately convex, surface very densely and coarsely punctured. Elytra moderately coarsely punctured, more densely along the suture near the base, gradually more sparsely at sides and apex, margin fimbriate. Body beneath moderately densely hairy. Length .50 inch; 12.5 mm.

Male.—Club of antennæ scarcely as long as the funicle. Abdomen moderately convex, sparsely punctured, last segment much shorter than the preceding. Claws alike on all the tarsi, each strongly pectinate on a *single* edge, the outer claw on the middle and hind tarsi have one of the teeth of the pectination near the tip a little stronger. Hind tibiæ slightly fimbriate within, spurs slender, tarsus as long as the tibia. Pygidium scarcely convex, sparsely punctate and opaque.

Female.—Unknown.

The posterior femora of this species are unusually coarsely punctured, a character not observed in any other. This species resembles in form and size *Lach. tristis*, and may at once be known from any other species by the entire surface of the thorax being densely and coarsely punctured.

One specimen from Cape San Lucas, Lower California.

L. scoparius Lec. Synopsis Melolonthidæ, Journ. Acad. Ser. 2, vol. ii, p. 264.—Cylindrical, moderately elongate, rufo-piceous, surface distinctly pruinose, sparsely clothed with short erect hair. Head coarsely but not densely punctured, shining, clypeus transverse, angles broadly rounded, feebly emarginate in front, margin moderately reflexed. Thorax twice as wide as long, narrower in front than at base, sides obtusely subangulate behind the middle, margin coarsely serrulate in front of middle and fimbriate, disc moderately convex, shining, sparsely punctate, punctures closer in front and near the anterior angles. Elytra sparsely punctate, margin fimbriate, sutural and one discal costa moderately distinct. Body beneath densely clothed with long pale hairs, abdomen sparsely punctate. Length .60 inch; 15 mm.

Male.—Club of antennæ slightly longer than the funicle. Abdomen flattened, fifth ventral feebly emarginate at middle and with a submarginal elevated line angulate to the front. Sixth ventral suddenly elevated at middle and terminating in two triangular teeth and fimbriate at the sides. Pygidium large, very convex, sparsely punctate. Anterior claws pectinate along a double margin, outer claw with one denticulation longer, simulating a slender tooth.

Middle claws pectinate along a double margin. Posterior claws finely serrulate along a double margin. Posterior tibiæ fimbriate with long hairs within, spurs slender, the outer one-fourth longer. Posterior tarsi about as long as the tibiæ, stout, densely clothed with moderately long pubescence beneath.

Female.—Club of antennæ shorter than the funicle. Tarsal claws similar on all the feet, each claw with a strong acute tooth at middle, basal portion distinctly serrulate, apical portion with two or three fine serrations. In addition on the inner side of each claw is a distinct second edge very finely serrulate. Abdomen convex, smooth, terminal segment when normally in position shorter than the preceding. Pygidium nearly as long as wide, moderately transversely impressed at apical third, the space posterior to the impression coarsely punctured, that anterior sparsely punctured, marginal groove moderately deep, margin at sides distinctly reflexed. Hind tarsi slender, a little longer than in the male and nearly as long as the tibiæ, the latter sparsely fimbriate within, the spurs slender, slightly arcuate, the outer somewhat larger.

This species has the most remarkable male characters of any in the genus and may thereby be at once known. The female from the table may be difficult to distinguish from that of *disparilis*, which is however a larger species, of darker color and more nearly superficially resembling *Lachnos. fusca.*

The male has but one tibial ridge while the female has distinct traces of a second.

Occurs in Arizona.

L. densicollis Lec. New Species, 1863, p. 77.—Subcylindrical, moderately elongate, piceo-rufous, surface distinctly pruinose. Head opaque, densely and coarsely punctured, front broadly and moderately deeply impressed above the suture, clypeus transverse, angles broadly rounded, anteriorly subtruncate, margin very feebly reflexed. Thorax one-half wider than long, narrower at apex than base, sides obtusely subangulate, margin feebly fimbriate and obsoletely crenulate, disc moderately convex, coarsely and deeply punctured, punctures dense at apex but somewhat sparser at base. Elytra moderately punctate, sutural and one discal costa feebly elevated. Length .62 inch; 15.5 mm.

Male.—Unknown.

Female.—Club of antennæ shorter than the funicle. Abdomen convex, punctulate, the last segment more densely and coarsely and nearly as long as the preceding. Pygidium sparsely punctate, feebly convex, and with a distinct gibbosity near the apex, apical margin slightly prolonged. Claws similar on all the tarsi, each with a moderately strong acute tooth near the tip and strongly pectinate at base. Hind tibiæ with slender, rather long spurs, tarsi as long as the tibia.

The pubescence is so removed from the entire surface of the unique before me that I cannot mention concerning it. There may be no difference in this respect between the present species and *mucoreus.* It is probable that the male characters in the claws do not differ greatly from that species.

L. mucoreus Lec. Synopsis Melolonthidæ, Journ. Acad. Ser. 2, vol. ii, p. 263; *texanus* Lec. ibid.—Oblong, subcylindrical, piceo-rufous or rufous, surface distinctly pruinose, sparsely clothed with short erect hair. Head coarsely but not densely punctured, front flat, clypeus transverse, broadly rounded at the sides, margin rather widely reflexed especially at middle. Thorax one-half wider than long, slightly narrower in front than at base, sides rather broadly arcuate, margin fimbriate and feebly serrate in front, disc moderately convex rather coarsely but not densely punctured. Elytra moderately coarsely but sparsely punctate, costæ entirely obliterated, margin sparsely fimbriate. Body beneath moderately densely pilose, abdomen shining, very sparsely punctate. Length .50—.70 inch; 12.5—17.5 mm.

Male.—Club of antennæ slightly longer than the funicle. Abdomen feebly flattened at middle, last segment very short. Pygidium very convex at tip, surface sparsely punctate. Anterior claws dissimilar, the outer pectinate along a double margin and with an obtuse tooth near the tip, inner claw pectinate without tooth. Middle claws similar, each pectinate along a double margin. Posterior claws similar to the middle. Posterior tibiæ scarcely fimbriate within, spurs rather slender, outer broader and longer and with a pellucid border at tip. Posterior tarsi slender, longer than the tibia.

Female.—Club of antennæ shorter than the funicle. Abdomen convex, fifth ventral slightly gibbous near the tip, last ventral short. Pygidium rather flat, longer than the male, sparsely punctured, opaque at base, apex slightly longitudinally impressed. Anterior claws similar each with a strong acute tooth near the tip, serrulate at base along a *single* margin only. Middle claws like the anterior. Posterior claws dissimilar, the inner pectinate along a single margin, the outer toothed as in the anterior claws. Posterior tibial spurs nearly equal in length the outer broader, each spatulate at tip with a pellucid margin, tarsi longer than the tibiæ.

One specimen, Cape San Lucas, Lower California.

I am entirely unable to discover any differences of a specific character between *mucoreus* and *texanus*, the types of the latter are merely somewhat smaller and more decidedly ferruginous in color.

Occurs in Texas, New Mexico, Arizona, and the desert region near Fort Yuma, California.

L. obtusus Lec. Synopsis Melolonthidæ, Journ. Acad. Ser. 2, vol. ii, p. 264.—Oblong ovate, ferruginous, faintly pruinose, surface sparsely pubescent, hairs longer near the base of the elytra, gradually becoming shorter toward the tip where they are very short. Head coarsely and densely punctured, front flat, clypeus transverse, anteriorly broadly arcuate, margin moderately reflexed. Thorax one-third broader than long, apex narrower than base, sides broadly and regularly arcuate, margin not serrulate and fimbriate with moderately long hair, disc moderately convex, coarsely but not densely punctured. Elytra not densely punctate, sutural costa very feeble. Body beneath moderately densely fimbriate, abdomen very sparsely punctate. Length .54 inch; 13.5 mm.

Male.—Club of antennæ longer than the funicle. Abdomen convex, sparsely punctulate, fifth segment very slightly longitudinally wrinkled on each side, sixth segment short. Pygidium convex, sparsely punctate and subtruncate at tip. Claws of anterior tarsi dissimilar, the inner pectinate along a double

margin, the outer in addition toothed near the tip. Middle claws similar, each pectinate along a double margin. Posterior claws similar to the middle, the two margins however so close as to appear almost as one. Posterior tibiæ with a few stiff hairs within, spurs slightly spatulate and pellucid at tip, the outer much longer, tarsus longer than the tibia.

Female.—Unknown.

The differences between this species and *mucoreus* as learned from the male are very feeble, consisting in the less angulated sides of the thorax and the much less distinctly bipectinate character of the claws. In *obtusus* there are moderately long hairs arising from the base of the thorax and elytra not seen in our specimens of *mucoreus*, but these may easily have been removed by accident. I retain the species for the present as distinct more from its facies, in the hope that the discovery of the female may teach more.

One specimen, Kansas.

L. opacicollis n. sp.—Subcylindrical, piceo-rufous, thorax darker and opaque, surface distinctly pruinose, sparsely clothed with short erect hairs. Head cribrately punctured, frontal suture not impressed, clypeus transverse, feebly emarginate at middle, margin moderately reflexed. Thorax more than twice as wide as long, narrower at apex than base, sides very obtusely subangulate behind the middle, margin coarsely crenulate and fimbriate, disc moderately convex, surface opaque, sparsely obsoletely punctate. Elytra sparsely punctate and pubescent, surface pruinose, sutural costa feeble, discal costa entirely wanting, margin fimbriate with moderately long hairs. Body beneath moderately punctate, rather sparsely clothed with long whitish hairs. Length .50—.56 inch; 12.5—14 mm.

Male.—Club of antennæ longer than the funicle and paler. Abdomen with segments three and five with moderately long hairs at middle, last three segments broadly concave. Pygidium moderately large, convex, shining, sparsely punctate and subtruncate at tip. Claws similar on all the tarsi, each with a small tooth at middle, the basal portion of the claw very finely serrulate, apical portion simple. Posterior tibiæ fimbriate within with moderately long hair, the spurs slender, the outer one-fourth longer. Posterior tarsi longer than the tibiæ.

Female.—Club of antennæ slightly variable in length but always shorter than the funicle. Claws on all the tarsi alike and precisely like those of the male. Abdomen convex, smooth and convex at middle. Posterior tibiæ with few hairs within, shorter than the male, spurs shorter, broader and more curved than the male and pellucid at tip. Pygidium more narrowed at tip than male, sparsely punctured, moderately shining. Posterior tarsi shorter than the tibiæ.

This species is at once known by its opaque thorax.

The specimens from Arizona and New Mexico have the thorax a little less opaque than those from Utah, and the tarsi a little shorter than in the ♀ from Utah, they agree however in all other characters, and I am unwilling to separate them as distinct, but as these are all

females the discovery of a corresponding male may give some other characters.

Occurs in Utah, Arizona and New Mexico.

L. sociatus n. sp.—Oblong ovate, reddish-brown, very faintly pruinose. Head slightly convex, densely cribrate punctate, clypeus transverse, feebly subtruncate, angles broadly rounded, margin very narrowly reflexed. Thorax one-half wider than long, slightly narrower at base than apex, sides obtusely subangulate behind the middle, margin strongly crenulate from apex to base and fimbriate with moderately long hair, disc moderately convex, coarsely and moderately deeply punctured, punctures denser in front along the margin. Elytra coarsely and sparsely but not deeply punctured, sutural costa feebly elevated, surface not pubescent. Body beneath clothed with long white hairs, abdomen very sparsely punctate. Length .54 inch; 13.5 mm.

Male.—Club of antennæ nearly as long as the funicle. Abdomen moderately convex, fifth segment with a subtriangular gibbosity at middle, sixth nearly as long as the fifth. Pygidium broad, moderately convex, sparsely punctured. Claws alike on all the tarsi, each with a small tooth near the middle and under high power a feeble crenulation. Posterior tibiæ stout, coronary ridge strong, spurs slender, slightly curved and somewhat pellucid at tip, tarsi about as long as the tibiæ.

Female.—Club of antennæ small, ovate. Abdomen convex without special characters, last ventral shorter than the preceding. Pygidium wider than long, rather flat, sparsely punctate. Claws similar on all the tarsi, each with a moderately strong acute tooth at middle but with no crenulation. Hind tibiæ stout, spurs rather broader and more curved than the male, tarsi evidently shorter than the tibiæ.

This species is one of the few on which I have not found any elytral pubescence. It may be known by its strong posterior tibiæ, which resemble those of *Lijyrus*.

Occurs in Nevada, Idaho and Oregon.

L. timidus n. sp.—Oblong, subcylindrical, pale castaneous, surface shining. Head densely and moderately coarsely punctured, front flat, clypeus transverse, angles broadly rounded, apex feebly emarginate, margin moderately reflexed. Thorax nearly twice as wide as long, apex slightly narrower than base, sides arcuate, very obtusely subangulate, margin entire, not fimbriate, disc moderately convex, shining, coarsely punctured, sparsely at base and sides, more densely along the apical margin. Elytra coarsely but not densely punctured, sutural and one discal costa feebly elevated. Metasternum at middle coarsely and very sparsely punctured, punctures denser toward the sides, surface sparsely pubescent. Length .40 inch; 10 mm.

Male.—Unknown.

Female.—Club of antennæ ovate, shorter than the funicle. Abdomen moderately convex, sparsely punctate, last segment scarcely half as long as the preceding. Pygidium coarsely but not densely punctured. Claws alike on all the tarsi, each with a moderately strong acute tooth near the middle and very finely crenulate toward the base. Hind tibiæ with slender unequal spurs, tarsi as long as the tibiæ.

This species is very distinct by its size color, sculpture beneath and general absence of pubescence. The frontal ridge so characteristic of the species of this genus is here completely wanting, and very little is left of Listrochelus excepting the feeble serrulation of the claws.

One specimen, Arizona.

L. falsus Lec. Synopsis Melolonthidæ, Journ. Acad. Ser. 2, vol. ii, p. 264.—Oblong oval, pale ferruginous, surface distinctly pruinose and sparsely clothed with very short erect hairs. Head densely and coarsely punctured, front flat, clypeus transverse, angles broadly rounded, margin moderately reflexed, anteriorly feebly emarginate. Thorax nearly twice as wide as long, slightly narrower in front than at base, sides obtusely subangulate at middle, posteriorly slightly sinuate, margin crenulate and fimbriate, disc moderately convex, surface shining, moderately coarsely but not densely punctured. Elytra very sparsely punctate, sutural costa feeble, discal costæ obsolete. Body beneath moderately densely hairy, abdomen obsoletely sparsely punctate. Length .56 inch; 14 mm.

Male.—Club of antennæ longer than the funicle. Fourth and fifth ventral segments suddenly concave, sixth slightly concave at middle and longitudinally impressed. Pygidium convex, sparsely punctate, apex truncate. Claws of anterior tarsi dissimilar, the inner slender and simple, the outer with a very small tooth at middle and an extremely feeble trace of denticulation. Middle claws with a very fine tooth at middle. Posterior claws with a fine tooth at middle but without denticulation. Posterior tibiæ with a few stiff hairs within, spurs slender, outer slightly longer, tarsi slightly longer than the tibiæ. Sixth ventral nearly as long as the preceding.

Female.—Club of antennæ slightly shorter than the funicle. Abdomen convex, sparsely punctulate, fifth ventral with a single transverse plica at middle and very little longer than the sixth. Pygidium moderately convex, sparsely punctate and shining, marginal groove moderately deep, apex oval. Claws alike on all the feet, each with a small but quite distinct tooth at middle and without denticulation. Posterior tibial spurs slender, pellucid at tip, the outer somewhat longer, the tarsus about the length of the tibia.

This species is about the size and form of *Lachnosterna tristis*. Both sexes have the posterior tibiæ unicoronate.

Occurs in Kansas, Colorado and New Mexico.

L. fimbripes Lec. Synopsis Melolonthidæ, Journ. Acad. Ser. 2, vol. ii, p. 264.—Subovate, ferruginous, surface distinctly pruinose, sparsely clothed with moderately long erect hairs. Head coarsely and moderately densely punctured, clypeus transverse, angles broadly rounded, margin moderately reflexed, at middle feebly emarginate. Thorax more than twice as wide as long, apex slightly narrower than base, sides obtusely subangulate and slightly sinuate posteriorly, margin serrulate in front and fimbriate, basal margin with moderately long erect hairs, disc moderately convex, surface shining, very sparsely and not deeply punctate. Elytra sparsely punctate, smoother near the tip, sutural and one discal costa feebly elevated. Body beneath moderately densely clothed with rather long hairs. Length .48 inch; 12 mm.

Male.—Club of antennæ longer than the funicle. Abdomen slightly flattened, posterior margin of third segment somewhat elevated, fifth and sixth segments longitudinally impressed, the fifth more deeply, the two segments equal in length. Pygidium convex, sparsely punctate, tip distinctly truncate. Claws alike on all the tarsi, slender and almost absolutely simple and with merely a feeble trace of crenulation at base under high power. Posterior tibiæ fimbriate within with moderately long hairs, spurs slender the outer longer, tarsi distinctly longer at tip. First joint of anterior tarsus distinctly prolonged at tip.

Female.—Club shorter than the funicle, ovate. Abdomen convex, sparsely punctured, last two segments with coarser punctures, the fifth with a vague transverse impression in front. Pygidium strongly narrowed to the tip with nearly straight sides, tip truncate, surface sparsely punctured. Claws alike on all the tarsi, each with a moderate sized acute tooth at middle and without any evidence of crenulation, except very feebly on the posterior claws. Posterior tibiæ with a few stiff hairs within, spurs slender as in the male but pellucid at tip, tarsi decidedly shorter than the tibiæ. Last ventral segment as long as the preceding.

This species has nearly the form and appearance of *falsus*, but is rather shorter.

Occurs in Kansas, Colorado and New Mexico.

L. senex n. sp.—Subcylindrical, brownish piceous, feebly pruinose. Head moderately densely and coarsely punctured, front flat, suture finely impressed, clypeus transverse, angles broadly rounded, anteriorly feebly emarginate, margin narrowly reflexed. Thorax one-half wider than long, slightly narrowed in front, sides broadly arcuate, margin crenulate in front, disc convex, surface with large, moderately deep punctures, sparsely and irregularly placed. Elytra scarcely wider than the thorax, rather coarsely and sparsely punctate, sutural costa feebly distinct. Metasternum with coarse rather sparse punctures surface sparsely fimbriate. Abdomen nearly smooth. Length .42 inch; 10.5 mm.

Male.—Unknown.

Female.—Club of antennæ nearly as long as the funicle. Abdomen feebly convex, last segment shorter than the preceding. Pygidium slightly convex, unpunctured, with scarcely any marginal groove. Claws alike on all the tarsi, each absolutely simple and slender. Posterior tibial spurs rather slender, unequal, slightly pellucid at tip. Tarsi slender one-half longer than the tibiæ.

Even in the absence of the other sex this species may be known by its comparatively, very convex thorax with large punctures distantly placed, deeply impressed and by the metasternum coarsely punctured and sparsely pubescent. On the outer claw of the hind tarsus is a scarcely observable trace of a tubercle which replaces the tooth of the other species.

One specimen, probably from the Llano Estacado, Texas.

Synopsis of the QUEDIINI of the United States.

BY GEORGE H. HORN, M. D.

THE genera here included form, by the arrangement adopted by Dr. Leconte (Classification p. 63), a portion of the larger tribe Staphylinini, which is characterized by the insertion of the antennæ at or near the anterior margin of the front, above the base of the mandibles and near to the antero-superior margin of the eyes.

The present subtribe differs from the others in having the lateral margin of the thorax single, and the side of the head beneath with a distinct infra-orbital ridge.

The species are all slender, either fusiform or almost linear and in this respect resemble the Bolitobius group of the Tachyporini, with which they have several characters in common.

Our genera may be arranged as follows:

Tarsi four-jointed; mandibles prominent.
Maxillary palpi long, slender; anterior tarsal claws larger than the others. **Tanygnathus.**

Tarsi five-jointed.
Antennæ geniculate, first joint elongate; anterior tarsal claws larger than the others..... **Acylophorus.**
Antennæ straight, first joint not elongate; tarsal claws similar on all the feet.
Palpi subulate. Prothorax beneath without post-coxal process. **Heterothops.**
Palpi filiform. Prothorax with post-coxal process..... **Quedius.**

Euryporus puncticollis Erichs., has been rejected from the above system as the prothoracic margin is double. It will therefore take place in the genuine *Staphylinini* nearer *Philonthus*.

TANYGNATHUS Erichs.

Head slightly prolonged before the eyes which are oval and moderately prominent, infra-orbital ridge distinct. Antennæ geniculate, inserted at the sides of the front above the base of the mandibles. Maxillary palpi elongate, filiform. Mandibles elongate, slender, acute at tip and decussating. Tarsi four-jointed, claws very small on the middle and posterior tarsi, much larger on the anterior.

This genus had been placed by Erichson among the Tachyporini, but has very properly been removed. The insertion of the antennæ is that of the present group. The posterior coxæ although transverse are hidden in their outer half by the metathorax and the metathoracic

side pieces as in the other Quediini, while in the Tachyporini the coxæ are free in their entire length.

T. collaris Er., Staphyl. p. 289.—Head oval, smooth, shining, two punctures over each eye. Antennæ geniculate, longer than the head and thorax, slender. Thorax broader than long, narrowed in front, sides feebly base more broadly arcuate, disc with two punctures one-third from apex, two at the apical margin, others smaller and distant along the lateral and basal margins. Scutellum moderately densely and finely punctulate. Elytra conjointly a little wider than long, surface densely and finely punctulate and finely pubescent. Abdomen rather coarsely punctate. Length .14 inch; 3.5 mm.

The colors of this species are: head black, antennæ rufo-piceous, paler at tip and base, thorax bright rufous, scutellum rufous, elytra piceous, apical margin narrowly rufous, abdomen rufo-piceous, legs testaceous. The thorax may become darker.

Specimens were collected at Haulover, Florida, by Messrs. Hubbard and Schwarz, which agree with Erichson's description of the species as found in Venezuela and Guiana.

ACYLOPHORUS Nordm.

There are but few special characters among the species of this genus.

The *head* is oval, slightly longer than wide, with four punctures in a line on each side, two over each eye and two others posteriorly. Behind the eyes are numerous punctures with short pubescence, except in *flavipes* in which that part is nearly smooth.

The *labrum* is truncate.

The *eyes* are oval, longer than wide, the anterior margin subtruncate in most of the species and very narrowly separated from the base of the mandibles; *pratensis* however has the eyes rounded in front and distant from the base of the mandibles. The infra-orbital ridge although present is very feebly developed.

The *antennæ* equal the head and thorax in length, slightly or very decidedly (*flavipes*) thickened externally and with the second joint always longer than the third.

The *thorax* is broader than long, narrowed in front, and on each side of middle in front two punctures, one at the margin the other one-third behind it.

The anterior *tarsi* are stouter than the others, the first four joints short and indistinct, the fifth as long as these together, bearing stout feebly curved claws. The middle and posterior tarsi are slender and have disproportionately small claws. This difference in the claws is not sexual.

The differences between the sexes are not apparent.

The species of this genus are closely allied and differ by comparatively slight characters. Color must be considered of very doubtful value, and too great importance should not be attached to slight variations in punctuation.

In presenting a synoptic table of our species, I find myself compelled to make use of characters entirely different from those heretofore proposed.

Base of mandibles distant from the eyes.....**pratensis.**
Base of mandibles very close to the eyes.
  Head behind the eyes with numerous punctures and short hairs.
    Thorax rufous.....**flavicollis.**
    Thorax black.
      Scutellum usually sparsely punctured.....**pronus.**
      Scutellum densely punctured.....**densus.**
  Head behind the eyes smooth or nearly so.
    Antennæ subclavate, the outer five joints transverse.....**flavipes.**

A. pratensis Lec. New Species, 1863, p. 34.—Black, shining. Elytra conjointly a little wider than long, surface rather coarsely but not densely punctured, punctures at the sides finer and denser, sparsely clothed with brownish hair. Scutellum sparsely punctate. Abdomen sparsely punctate and clothed with brownish hair. Length .28 inch; 7 mm.

Not only are the mandibles distant at base from the eyes but the insertion of the antennæ also. The palpi are rather longer and more slender than usual.

One specimen, Kansas.

A. flavicollis Sachse. Stettin Zeitschr. 1852, p. 143.—Head black, shining, anterior puncture at the margin of the eye, the second distant and nearly frontal, the two posterior on the occiput, placed obliquely. Antennæ piceous, testaceous at base. Thorax rufous, shining, normally punctured. Scutellum sparsely punctate. Elytra black, shining, sparsely pubescent, conjointly a little wider than long, surface coarsely and moderately closely, sub-muricately punctate, punctures a little finer and denser along the base and sides. Abdomen sparsely punctate, segments smoother posteriorly. Legs rufo-testaceous. Length .20—.22 inch; 5—5.5 mm.

Occurs from Pennsylvania to Kansas and Texas.

I am unable to find any real differences between this species and the next except in color. If the two are united it will merely parallel what occurs in many *Quedius* and in *Diochus Schaumii.*

A. pronus Erichs. Staphyl. p. 521; *gilensis* Lec. New Species, 1863, p. 34.—Black, shining. Antennæ piceous, usually paler at base. Legs variable, usually testaceous often piceous. Length .18—.24 inch; 4.5—6 mm.

The other characters are already given in the preceding species.

Occurs all over the United States on both coasts.

A. densus Lec. Proc. Am. Philos. Soc. 1878, p. 387.—Black, shining. Scutellum with numerous punctures. Elytra slightly longer than wide conjointly, surface slightly more finely and a little more densely punctured than in *pronus*. Antennæ piceous, last two joints somewhat paler. Legs yellowish testaceous. Length .28 inch; 7 mm.

This species is also closely related to *pronus* but may be distinct. The punctuation of the scutellum cannot be depended upon in the separation of this species from the preceding, nor can too much stress be laid upon the elytral sculpture, this also being a variable character. I have seen in Mr. Ulke's cabinet a specimen from Maryland, very nearly intermediate between *pronus* and *densus*, with however a little more resemblance to the latter in elytral sculpture. Until we have more specimens it will be better to retain this species as distinct, while *flavicollis* might be placed as a color variation of *pronus*.

Occurs in Florida and Maryland.

A. flavipes Lec., loc. cit.—Black, shining. Head with very few punctures at the side behind the eyes. Antennæ stouter externally, the last five joints as broad or broader than long. Elytra punctured as in *pronus*, the punctures however relatively longer and less closely approximated. Legs testaceous. Length .18 inch; 4.5 mm.

This species is very distinct from *pronus* by the characters afforded by the head and antennæ, the form is apparently more slender but this is deceptive.

One specimen, Florida.

HETEROTHOPS Steph.

The head in our species has on each side either three or four punctures arranged in nearly a straight line, the anterior being nearly at the middle of the margin of the eye; behind the eye are a few small setigerous punctures.

The palpi, both labial and maxillary have the last joint subulate.

The thorax has in front two punctures on the disc and two smaller at the apical margin.

The sexual characters are as in Quedius, the sixth abdominal segment emarginate in the male. The tarsi are dilated in both sexes nearly equally.

The color varies greatly among the individuals of a species, so that names have been given to color variations.

There seem to be but two species in our fauna distinguished by the following characters:

Third joint of the antennæ as long as the second, eleventh not longer than the two preceding together, head with four punctures on each side. **fumigatus.**

Third joint of antennæ shorter than second, eleventh longer than the ninth and tenth together and not obliquely emarginate, head each side with three punctures.....**pusio.**

H. fumigatus Lec., var. *fusculus* Lec., var. *californicus* Lec. New Species, 1863, p. 35.—Head ovate, smooth, shining, on each side four punctures in nearly a straight line and two others near the nuchal constriction arranged transversely. Antennæ longer than the head and thorax, third joint as long as the second, eleventh shorter than the ninth and tenth united and slightly obliquely truncate at tip. Thorax as wide as long, narrowed in front, sides nearly straight, base broadly arcuate, anteriorly two discal punctures, with the usual apical and marginal punctures. Scutellum sparsely punctate. Elytra conjointly a little wider than long, surface moderately and not densely punctulate, sparsely pubescent. Abdomen more densely and finely punctured than the elytra along the anterior portion of the segments, less densely at apical portion. Length .12—.20 inch; 3—5 mm.

In color the following varieties occur:

fusculus Lec.—Head black, thorax (paler), elytra abdomen rufo-piceous. Legs testaceous. Antennæ piceous, three basal joints pale.

fumigatus Lec.—differs from the above in having the abdomen darker.

———.—Color above and beneath piceous.

californicus Lec.—Color darker piceous to black, legs variable in color from piceous to testaceous.

There is also some slight variation in punctuation both on the elytra and abdomen, but any attempt at a separation based on this makes a very unsatisfactory arrangement of the specimens before me.

I find the locality of the specimens has but little to do with color, the same variations in color occurring in specimens from Michigan, Pennsylvania or California.

The distribution of this species is very extended and we have it from Michigan, Canada, the Middle States, Texas and California. This species should be compared with *dissimilis* of Europe.

H. pusio Lec. New Species, 1863, p. 35.—Head ovate, black, smooth, shining, one puncture at the middle of the eye above, one at the posterior margin of the eye and a third posterior to this. Antennæ not longer than head and thorax, third joint scarcely longer than half the second, eleventh as long as the two preceding united, and not obliquely truncate at tip. Thorax piceous, smooth, shining, punctured as in the preceding, wider than long, narrowed in front, sides feebly, base more broadly arcuate. Scutellum moderately densely punctulate. Elytra conjointly nearly as wide as long, moderately densely punctulate and pubescent. Abdomen moderately densely and more finely punctulate. Length .10 inch; 2.5 mm.

The thorax is piceous, the elytra paler, the abdomen a little darker than the elytra. Legs piceo-testaceous. Antennæ piceous, three basal joints pale.

This species is very distinct by the structural characters given in the table, the punctuation although finer and denser than in the preceding species is a character of far less moment.

Occurs in New York, Pennsylvania, Ohio, and one from Camp Grant, Arizona.

QUEDIUS Steph.

The *head* is oval or orbicular, sometimes moderately elongate (*peregrinus*), and posteriorly variably constricted. The front in many species has two punctures in addition to a normal series of four punctures which are placed. (1), at the base of the antenna; (2), near the margin of the eye anteriorly; (3), near the margin of eye posteriorly; (4), behind the eye.

The *eyes* vary in size and prominence in the different species, are oval, usually placed slightly obliquely to the axis of the head and often subtruncate in front.

The *antennæ* also vary in form, being either very slightly thickened externally, in which case the joints 4—10 are as wide as long or nearly so, or slender where these joints are longer than wide, or subfusiform (*explanatus*), stouter at middle than at base or tip. The second joint is normally much shorter than the third, frequently however as long.

The *head beneath* presents nearly the structure already mentioned as characteristic of the *Bolitobii*, (Trans. Am. Ent. Soc. 1877, vi, p. 83), that is, there is a well marked elevated line extending along the side of the head beneath, from the base of the mandibles to the nuchal constriction, and as might be expected is better developed in that species which resembles *Bolitobius* in appearance (*vernix*), and disappears almost entirely as the species approach *Philonthus*.

The *thorax* in most of the species is narrowed in front with the sides toward the edge regularly deflexed. In *ferox* the thorax has nearly parallel straight sides, and in *explanatus* there is scarcely any narrowing to the front. Two species (*explanatus* and *spelæus*) have the sides distinctly explanate, the same is sometimes feebly indicated in specimens of *fulgidus*. In all our species with two exceptions (*vernix*, *ferox*), there is a discal series of three punctures, by the Erichson method of numeration, the anterior of which is usually on the apical margin; other punctures forming a series lateral to this often occur and others, smaller, along the apical, lateral and basal margins. In the exceptions above noted there are but two punctures in the discal series.

The *under side* of the thorax presents but little variation. Erichson and many following him have used the process behind the anterior coxæ as a point of departure in the primary division of the species. An examination of a large number of specimens convinces me that this character has no value whatever. This piece which is the epimeron varies in size in the species and may be long or short, opaque, translucent, or transparent, but there is no such division as corneous and membranous. It is in fact in every species in our fauna semi-corneous. I have been obliged to reject it in arrangement of the species.

The *scutellum* varies in being smooth or punctured.

The *elytra* vary in punctuation in the species, but variation within specific limits must be admitted.

The *abdomen* varies in sculpture with the elytra and is usually more sparsely punctured.

The anterior tibiæ are rather inconspicuously spinulose externally, the middle and posterior very plainly so except in *lævigatus*.

The *tarsi* are hairy on their upper side in all the species, except *vernix* and *ferox* in which they are smooth and without hairs.

The *labrum* presents two distinct forms, and by this means the genus can be divided into two portions much more satisfactorily than by any other method. The normal form of labrum is that in which there is an acute incisure at middle so that a bilobed form is presented. In many however, the labrum is entire and either broadly arcuate in front (*molochinus*), or truncate.

The affinities of *Quedius* have already been hinted at and are plainly with *Bolitobius* through *vernix*, and with *Philonthus* through the species with the entire labrum.

The sexual characters are remarkably uniform and consist in the male, of an emargination of the sixth ventral (truncate in *vernix*), a greater dilatation of the anterior tarsi, and frequently a broader head.

Based on the foregoing remarks, the following method of arrangement is presented:

A.—Tarsi above hairy. Thorax with three discal punctures.
Labrum bilobed.....1.
Labrum entire, either arcuate or truncate.....10.
1.—Antennæ fusiform.....**explanatus.**
Antennæ filiform or slightly thicker externally.....2.
2.—Hind tibiæ distinctly spinulose externally.....3.
Hind tibiæ not spinulose.....9.

3.—Scutellum smooth.....4.
Scutellum punctured.....8.
4.—Front without punctures.....5.
Front bipunctate.....7.
5.—Margin of thorax distinctly explanate.....**speleæus.**
Margin of thorax not explanate.....6.
6.—Head broadly oval.
Second joint of antennæ shorter than third, joints 4—10 evidently gradually broader.....**fulgidus.**
Second joint as long as the third, antennæ slender. (Species much smaller than *fulgidus*.....**sublimbatus.**
Head elongate, as long as the thorax.....**peregrinus.**
7.—Elytra very irregularly punctured.....**capucinus.**
8.—Elytra finely and very densely punctured.....**desertus.**
Elytra more coarsely and not densely punctured.....**limbifer.**
9.—Elytra impunctured, form depressed.....**lævigatus.**
10.—Labrum broadly arcuate.....**molochinus.**
Labrum truncate. Eyes usually large.....11.
11.—Scutellum punctured. No frontal punctures.....**hyperboreus.**
Scutellum smooth.....12.
12.—Infra-orbital ridge well marked. Frontal punctures.....**æneseens.**
Infra-orbital ridge feeble or obsolete.....13.
13.—No frontal puncture.....14.
Frontal punctures distinct.....15.
14.—Eyes large but not prominent, abdominal segments not impressed, pubescence unicolorous, elytra sparsely and very indistinctly punctured. Surface not æneous.....**debilis.**
Eyes large and prominent, abdominal segments vaguely impressed on each side containing greyish pubescence.
Elytra regularly punctured over the entire surface, thorax æneous, elytra black, shining.....**prostans.**
Elytra with distant punctures in rows, thorax black, elytra æneous. **seriatus.**
15.—Eyes large and prominent, occiput and post-ocular region with numerous punctures. Surface æneous.....**puncticeps.**
B.—Tarsi above glabrous. Thorax bipunctate.
Form slender, thorax with nearly parallel sides.....**ferox.**
Form robust, thorax narrowed in front.....**vernix.**

In using the above table it must be borne in mind that there is a tendency in many species to vary, and lose to a greater or less extent some of the characters which distinguish the species in the aggregate. This has been especially noticed in *fulgidus*, the two extremes of a series seem almost like distinct species. The form of the labrum must also be taken from a series and not from one specimen alone.

In the preparation of the present paper, the material in the cabinets of Dr. Leconte and Mr. Ulke have been freely at my disposition as well as my own.

In Leconte's series are types of many of Mannerheim's and Mäklin's species, and specimens of their determination as follows:

Q. erythrogaster Mann.	*Q. plagiatus* Mann.
Q. sublimbatus Mäkl.	*Q. longipennis* Mann.
Q. pediculus Nord. (Mann.)	*Q. æenescens* Mäkl.
Q. marginalis Mäkl.	*Q. limbifer* (Fauvel mss.)

The following previously unknown have been determined from description:

Q. melanocephalus Mann.	*Q. bardus* Mels.
Q. brunnipennis Mann.	*Q. terminatus* Mels.
Q. hyperboreus Erichs.	*Q. peregrinus* Grav.

Q. transparens Mots., Bull. Mosc. 1845, iv, p. 358.—I have been unable to determine this species satisfactorily, but suspect it to be that form of *molochinus* with the front bipunctate. Motschulsky, however, says the "labrum is transverse and a little emarginate," and this latter character is the only one which deters me from referring it to that species.

Q. explanatus Lec. Proc. Acad. 1858, p. 61.—Head large, oval, slightly longer in the ♀, semiopaque, finely alutaceous and finely but distantly punctured, with two supra-orbital large punctures distant from the eyes, another near the insertion of the antennæ and numerous small punctures at the side behind each eye; neck rather feebly constricted. Labrum bilobed. Eyes small, oval, oblique, subtruncate in front. Antennæ a little longer than the head, slightly fusiform, last joint slender and obliquely emarginate. Thorax wider than the head, broader than long, apex feebly emarginate, sides feebly arcuate and scarcely narrowed posteriorly, margin explanate, base broadly arcuate; disc convex, surface subopaque, finely alutaceous, very minutely punctulate, anteriorly with three small equidistant punctures on each side of middle in converging rows, and numerous marginal punctures along the sides and at base. Scutellum sparsely punctate. Elytra narrower than the thorax, conjointly a little wider than long, surface rather finely and closely punctate and clothed with recumbent black hairs. Abdomen a little less densely punctured than the elytra, more sparsely along the middle. Body beneath moderately closely punctulate and clothed with black pubescence. Legs similarly punctate. Tibiæ spinulose. Length .40—.80 inch; 10—20 mm.

The males have the anterior tarsi a little more broadly dilated than the female, the head larger and the sixth ventral segment slightly emarginate at tip.

The color of this species is black, without any tendency whatever to vary. The prothoracic process behind the coxa is large and corneous.

Occurs in California, from Tejon southward, and to Bitter Root Valley, Montana.

Q. spelæus Horn. Trans. Am. Ent. Soc. 1871, p. 332.—Form elongate. Head oval, longer than wide, surface smooth and shining, two supra-orbital punctures distant from the eyes and another behind the eye, behind which are some smaller punctures; neck moderately constricted. Labrum bilobed. Eyes oval, slightly oblique, and subtruncate in front. Antennæ filiform, one-half longer than the head, joints 4—10 similar, last joint longer and obliquely truncate. Thorax broader than long, narrowed in front, sides feebly base more broadly arcuate, margin near base explanate, surface highly polished and with three discal and the marginal punctures as in *explanatus*. Scutellum smooth. Elytra narrower than the thorax, conjointly as wide as long, surface closely punctulate and sparsely clothed with brownish hair. Abdomen parallel, above more sparsely punctured than the elytra, the punctures denser at the sides and anterior portions of the segments. Body beneath more sparsely punctured than above. Femora punctate, tibiæ spinulose. Length .56—.60 inch; 14—15 mm.

The anterior tarsi are dilated in both sexes but much more in the male, in which also the sixth ventral segment is feebly emarginate at middle.

The post coxal process is of moderate extent and semi-corneous. The thorax in general outline is nearly circular less the apical emargination. The color in the three specimens before me is pale brownish testaceous, varying to pale castaneous.

Two specimens were collected by Prof. Cope within the mouth of Wyandotte Cave, Indiana, a third is from Colorado by Morrison.

Q. fulgidus Fab. (*Staph.*), Mant. Ins. i, p. 220; Erichs. Staph. p. 525; *iracundus* Say, Trans. Am. Phil. Soc. N. S. iv, p. 449; *grœnlandicus* Zett. Ins. Lappon. 61, 13; *erythrogaster* Mann. Bull. Mosc. 1852, ii, p. 314; *melanocephalus* Mann. loc. cit. p. 315.—Form moderately elongate. Head oval slightly broader than long ♂, or as long as wide ♀, surface smooth polished and with moderate punctures on each side, the first small over the insertion of the antennæ, second near the inner margin of the eye, third larger distant from the eye, a fourth post-ocular around which are numerous smaller punctures, neck feebly constricted. Eyes not prominent, slightly oblique, subtruncate in front. Antennæ piceous or rufo piceous, filiform, attaining the middle of the thorax, joints 4—10 as wide as long, eleventh longer and subacute at tip. Labrum bilobed. Thorax slightly wider than long, narrowed in front, apex emarginate, sides feebly arcuate, margin not explanate, base broadly arcuate, surface smooth and shining and with the three discal punctures on each side of middle in front, another series of three exterior to this and numerous marginal and basal punctures. Scutellum smooth. Elytra as wide as the thorax, conjointly wider than long, surface regularly and moderately coarsely but not densely punctured and sparsely pubescent. Abdomen more finely and densely punctured than the elytra, sparsely pubescent, beneath more coarsely punctured. Femora punctate, tibiæ spinulose. Length .28—.44 inch; 7—11 mm.

The anterior tarsi are about equally dilated in the sexes. The male has however a larger head and the sixth ventral feebly emarginate at middle.

The variations of color are so numerous in this species as to have caused the amount of synonymy above noted, to which European additions might be made. In all well preserved specimens the abdomen is iridescent.

The principal varieties are as follows:

groenlandicus Zett.—Color piceous or even black, legs and antennæ piceous.

fulgidus Fab.—Head and thorax black, elytra rufous or rufo-testaceous, abdomen piceous. Legs piceous varying to pale.=*iracundus* Say.

erythrogaster Mann.—Similar to *fulgidus* but with abdomen also rufous.

melanocephalus Mann.—Head black, thorax and elytra piceo-rufous, abdomen piceous.

There may possibly be some doubt regarding this last synonym, but immature specimens are before me which correspond very well with Mannerheim's description. It is however stated that the front at middle is not punctured, and this with the elytral punctuation fixes quite certainly the synonymy.

The prothoracic process is moderately long, and although corneous is semi-transparent.

This species is distributed over northern Europe and the north of our own continent, as far south as middle California and northern Georgia.

I have seen a curious deformity of the antennæ in a specimen of this species. On the right side joints six and seven, eight and nine in each case form one joint without indication of suture, and on the left side joints six and seven are connate but a constriction marks the point of union, while eight and nine are closely connate in a single joint as on the right side.

Q. sublimbatus Mäkl. Bull. Mosc. 1853, iii, p. 190.—Head oval, shining, smooth, a minute puncture over the base of the antennæ, a larger at the margin of the eye, one distant from the eye on the occiput, another posterior to the eye, front without punctures. Labrum bilobed. Antennæ nearly as long as the head and thorax, gradually broader to the tip, last joint larger than the preceding, obliquely truncate, color piceous or rufous. Eyes oval, longitudinal not truncate in front. Thorax wider than long, narrower in front, sides moderately base more strongly arcuate, surface smooth, shining with a dorsal series of three punctures, no lateral series, marginal punctures distant and small. Scutellum smooth. Elytra as wide as thorax, conjointly longer than wide, surface with coarse, deep and moderately closely placed punctures, sparsely pubescent. Abdomen sparsely finely punctate, sparsely pubescent. Body beneath very sparsely punctate, abdomen beneath as above. Femora very sparsely punctate, tibiæ finely spinulose. Length .20—.24 inch; 5—6 mm.

The sixth ventral of the male is rather deeply emarginate, and the anterior tarsi moderately dilated, and in the female feebly dilated.

The post coxal process of the thorax is short, translucent and semi-corneous.

The color is piceous, with the humeri and a narrow space at apex and along the suture paler. Legs testaceous or somewhat darker. Abdominal segments paler along their posterior borders.

The only variation is in the tendency of the thorax, elytra and abdomen to become brownish.

Occurs from Alaska to Fort Simpson and the Lake Superior region, (Michipicoton River, Schwarz).

Q. peregrinus Grav. (*Staph.*), Monog. p. 53; Erichs. Staph. p. 550; *terminatus* Mels., Proc. Acad. ii, p. 39; *longiceps* Fv. mss.—Head elongate oval, much longer than wide, as long as the thorax, feebly constricted behind, and with punctures as in *sublimbatus*. Labrum bilobed. Eyes oval slightly oblique, subtruncate in front. Antennæ as in *sublimbatus*. Thorax polished, broader than long, narrower in front, sides feebly, base broadly arcuate, a dorsal series of three punctures, no lateral series, marginal punctures finer and distant. Scutellum smooth. Elytra conjointly a little longer than wide and slightly narrower than the thorax, surface sparsely not coarsely nor deeply punctate, sparsely pubescent. Abdomen more densely punctured than the elytra and with somewhat longer brownish hair, beneath punctured as above, body very sparsely punctate. Femora sparsely and finely punctulate, tibiæ spinulose. Length .24—.36 inch; 6—9 mm.

The sexual characters are as in *sublimbatus*.

The color is here variable. A few specimens are entirely piceous with paler legs; *terminatus* Mels., has the last two abdominal segments paler; the thorax becomes quite rufous in many specimens and the elytra and abdomen rufo-piceous. In those specimens with a paler abdomen the margins of the segments are testaceous.

The post coxal process is as in *sublimbatus*.

Occurs from Canada to the Carolinas. It is abundantly distinguished from all others in our fauna by its elongate head, which is very feebly narrowed posteriorly.

Q. capucinus Grav. (*Staph.*), Monog. p. 40; Erichs. Staphyl. p. 531; *pediculus* Nord. Symb. 79; Erichs. loc. cit.; *inversus* Say, Trans. Am. Phil. Soc. iv, p. 449; *bardus* Mels. Proc. Acad. ii, p. 39; *ater* Zieg. Proc. Acad. ii, p. 266; *marginalis* Mäkl. Bull. Mosc. 1852. ii, p. 315; *cœnobita* Fv. mss.—Head orbicular ♂ or slightly oval ♀, smooth, shining, moderately constricted behind, a small puncture at the base of the antennæ, a second at the middle of the upper border of the eye, a third above the eye on the occiput, another behind the eye near which are numerous smaller punctures; front with two punctures between the eyes. Labrum bilobed. Eyes oval, slightly oblique, subtruncate in front. Antennæ attaining the middle of the thorax, slightly thicker externally, last joint longer and obliquely emarginate. Thorax slightly wider than long, narrowed in front, sides very feebly, base broadly arcuate, anteriorly with a discal series of three punctures exterior to which is another puncture forming

with the last two of the discal series an equilateral triangle, marginal series small and distantly placed. Scutellum smooth. Elytra slightly narrower than the thorax, conjointly a little longer than wide, surface shining, variably punctured, punctures usually coarse and deep and irregularly disposed. Abdomen iridescent, moderately closely but not coarsely punctulate, beneath less densely punctured. Femora sparsely punctulate, posterior tibiæ spinulose externally. Length .24—.36 inch; 6—9 mm.

Sixth ventral segment of male moderately emarginate, anterior tarsi dilated in both sexes but much more broadly in the male.

Post coxal process moderate, translucent.

The color is nearly always piceous or black, sometimes the elytra are rufous, the margins of the ventral segments pale and the legs piceo-testaceous.

There is considerable variation in the punctuation of the elytra which may be described as follows:

pediculus Nord.—Elytra with three irregular rows of coarse deep punctures between which the surface is often slightly rugulose. In the specimens before me the lateral puncture which forms an equilateral triangle with the last two discals is absent. Two of the specimens before me are from Mannerheim's series of this species from Kenai, Alaska.

capucinus Grav.—Elytra with the three series of punctures very irregular and between them numerous smaller punctures. Thorax with the equilateral triangle.

marginalis Mäkl.—Elytra rufo-piceous, punctures of nearly equal size, moderately large and regularly disposed. Thorax with equilateral triangle. One of the specimens before me is from Mannerheim.

Erichson says of *pediculus* that the elytra are irregularly biseriately punctate, evidently taking no account of an obsolete series between the sutural series and the one which starts at the humerus. I can find no valid reason for accepting *pediculus* or *marginalis* as valid species, the series now before me rendering it impossible to separate them.

This species occurs from Alaska southward to California, and in the Atlantic region to Georgia.

Q. desertus n. sp.—Form slender, elongate. Head oval, slightly longer than wide with punctures as in *limbifer*. Labrum bilobed. Eyes oval slightly oblique, truncate in front. Antennæ attaining the middle of the thorax, slightly thicker externally, last joint longer and obliquely emarginate. Thorax as long as wide, sides feebly, base more broadly arcuate, surface smooth and shining and with three discal punctures, no lateral series, marginal punctures small and distant. Scutellum punctured. Elytra as wide as the thorax, conjointly as wide as long, surface densely and finely punctured and with brownish pubescence. Abdomen very finely and moderately densely punctured and pubescent, beneath finely and sparsely punctured. Femora sparsely punctured, tibiæ externally spinulose. Length .32—.44 inch; 8—11 mm.

The sixth ventral of the male is feebly emarginate at middle, the anterior tarsi broadly dilated, in the female less dilated.

The five specimens before me are of brownish color with the head piceous.

Post coxal process of thorax moderately long, translucent.

This species although allied by its characters to *limbifer*, might readily be mistaken for *molochinus*, with which it agrees quite well in form and general appearance. It differs however principally in the form of the labrum. From *limbifer* it differs by its longer head, more slender form and denser and finer punctuation.

Occurs near the Colorado River in California, in Arizona and south-western Utah.

Q. limbifer n. sp. (Fauvel mss.)—Head oval, longer than wide, moderately constricted posteriorly, surface very finely alutaceous and with very minute punctures sparsely placed, the usual larger punctures are disposed—one at the insertion of the antennæ, one at the middle of the margin of the eye, another above the posterior border of the eye and one immediately behind the eye around which puncture are numerous smaller ones. Labrum bilobed. Eyes oval, slightly oblique. Antennæ attaining the middle of the thorax, filiform, last joint slightly longer and very feebly obliquely truncate. Thorax as long as wide or nearly so, feebly narrowed in front, sides feebly, base more broadly arcuate, surface smooth and shining, three discal punctures anteriorly, no lateral series, marginal punctures finer and distant. Scutellum sparsely punctulate. Elytra as wide as the thorax, conjointly a little longer than wide, surface shining, very regularly punctured but neither very coarsely nor densely, sparsely pubescent. Abdomen more finely and less densely punctured, sparsely pubescent, beneath more coarsely punctured than above. Femora sparsely punctate, posterior tibiæ spinulose externally. Length .24—.30 inch; 6—7.5 mm.

The sixth ventral of the male is feebly emarginate. The anterior tarsi are dilated in both sexes but less in the female.

The color of this species is usually piceous, with the margin of the thorax, the elytra and the apices of the abdominal segments paler. It may however be entirely piceous. The punctuation of the elytra and abdomen shows some variation and may be denser than described above.

The post coxal process is moderately long and translucent.

This species resembles *sublimbatus*, but this latter has the scutellum smooth and the elytra more coarsely and deeply punctured.

Occurs in California, Gilroy and Crystal Springs (Crotch), Mariposa, (Thevenet).

Q. lævigatus Gyll. (*Staph.*) Ins. Suecc. ii, 306; Erichs. Staph. p. 529; *plagiatus* Mann. Bull. Mosc. 1843, ii, p. 231; *longipennis* Mann. loc. cit. 1846, ii, p. 509; *rufipennis* Makl. Bull. Mosc. 1853, iii, p. 109.—Head broadly oval,

smooth, shining, rather strongly constricted at the neck, punctured as in *fulgidus*. Labrum bilobed. Antennæ attaining the middle of the thorax, gradually thicker externally, last joint longer and slightly obliquely truncate. Eyes longitudinally oval, subtruncate in front. Thorax slightly broader than long, smooth, shining, very little narrowed in front, sides feebly, base a little more arcuate; dorsal series of three punctures, no lateral series, marginal punctures small and distant. Scutellum smooth. Elytra as wide as thorax, conjointly a little longer than wide, surface impunctured, slightly wrinkled and feebly shining, glabrous. Abdomen sparsely punctate and pubescent, beneath and above. Posterior tibiæ not spinulose externally, the femur with a row of short bristly hairs beneath. Length .20—.36 inch; 5—9 mm.

The male has a feeble emargination at the tip of the sixth ventral. The anterior tarsi are dilated in both sexes but rather less in the female.

The color of this species is usually piceous, the elytra and margins of the abdominal segments rufo-testaceous. It may however be entirely piceous black, or the pale elytra may have a broad median piceous stripe.

The post coxal process is moderately long and translucent.

I have seen types of *plagiatus* and *longipennis*, and the description of *rufipennis* does not differ from some of the well known varieties before me.

Occurs in northern Europe, and on our own continent from Alaska to Oregon, Kansas, Canada and Pennsylvania.

Q. molochinus Grav. (*Staph.*) Mon. p. 46; Erichs. Staphyl. p. 555.—Head oval, smooth, shining, feebly constricted behind, with a small puncture at the base of the antennæ, another at the inner margin of the eye, three above the eye posteriorly and one immediately behind, front with or without punctures. Eyes moderately large, not prominent, oval, slightly oblique, subtruncate in front. Labrum moderately prominent anterior margin broadly arcuate. Antennæ nearly attaining the base of the thorax, rather slender, second joint very little shorter than the third, last joint obliquely truncate. Thorax a little wider than long, narrowed in front, sides feebly base broadly arcuate, surface smooth shining, with a discal series of three punctures, two others placed transversely and with marginal punctures around the base alone. Scutellum punctured. Elytra slightly narrower than the thorax, conjointly a little wider than long, densely punctured and clothed with brownish hair. Abdomen moderately densely pubescent and clothed with similar pubescence, beneath somewhat less densely punctured than above. Legs sparsely punctate, tibiæ spinulose externally. Length .28—.50 inch; 7—12.5 mm.

The sixth ventral of the male is deeply triangularly emarginate, the anterior tarsi broadly dilated and in the female less dilated.

The color is usually entirely piceous, the elytra and legs are however often brownish, or piceous with the entire limb rufous.

The post coxal process is rather short and translucent.

The majority of specimens from Vancouver and the west coast have two frontal punctures, while those from the eastern region are deprived of them. This is by no means constant, however, in either case, and as there are no other characters I keep them together.

Occurs from New Hampshire to Vancouver, and as far south as northern Georgia. It is also widely distributed in Europe, but I have not seen any from Alaska.

Q. hyperboreus Erichs. Staphyl. p. 547.—Head orbicular, strongly constricted posteriorly, smooth shining, a small puncture at the base of the antennæ, one at the middle of the upper margin of the eye two on the vertex one of which is at the edge of the eye, one immediately behind the eye on its posterior edge. Labrum truncate. Eyes large prominent, regularly oval, longitudinal. Infra-orbital ridge nearly obliterated. Antennæ slender, slightly thicker externally, passing the middle of the thorax, second joint equal to the third, last joint obliquely truncate. Thorax as wide as long, narrowed in front, sides feebly base more broadly arcuate with punctures as in *molochinus*. Scutellum punctulate. Elytra as wide as the thorax, conjointly as wide as long, surface moderately densely and feebly punctured and clothed with brownish pubescence. Abdomen a little more coarsely and less densely punctured than the elytra, beneath similarly punctured. Femora punctulate, tibiæ spinulose. Length .20—.24 inch; 5—6 mm.

The sixth ventral of the male is triangularly emarginate. The anterior tarsi strongly dilated in the male, very feebly in the female.

The color is piceous black, legs more or less testaceous, elytra brownish with an æneous tinge, abdomen iridescent.

The post coxal process is short and translucent.

Occurs from Maine to Vancouver and northward, but very little to the south of this line.

Q. brunnipennis Mann. Bull. Mosc. 1843, ii, p. 232; *æneseens* Mäkl. Bull. Mosc. 1852, ii, p. 315; 1853, iii, p. 190.—This species resembles *hyperboreus* and differs in the following characters: Front with two impressed punctures. Eyes large but not very prominent. Infra-orbital ridge well marked. Scutellum smooth. Elytra more coarsely and less densely punctured than *hyperboreus*. Abdomen much more finely and sparsely punctured than the elytra, beneath a little more coarsely than above. Length .24—.28 inch; 6—7 mm.

Sexual characters as in *hyperboreus*.

Color piceous or black with faint æneous tinge, legs piceous or somewhat paler. Elytra often brownish, segments of abdomen margined with paler at the tip.

Post coxal process short, transparent.

Specimens rarely occur without frontal punctures.

This species could only be confused with *hyperboreus*, but its smaller eyes, less punctured elytra, distinct infra-orbital ridge and smooth scutellum will at once distinguish it.

Occurs from the Lake Superior region westward to Vancouver, and northward to Alaska.

I have seen specimens of Mäklin's species and have no doubt of its identity with *brunnipennis*, although I have no type of the latter.

Q. debilis n. sp.—Head oval, with punctures as in *hyperboreus*. Eyes large, longitudinal, oval, not prominent. Infra-orbital ridge extremely feeble. Labrum truncate. Antennæ as in *hyperboreus*. Thorax as in *hyperboreus*, surface (also the head) distinctly alutaceous. Scutellum smooth. Elytra a little wider than the thorax, conjointly as wide as long, surface finely alutaceous, very sparsely and finely punctate, sparsely pubescent. Abdomen sparsely punctured and pubescent, a little more densely and finely at the basal portion of each segment, beneath as above. Femora punctulate, tibiæ spinulose. Length .18—.24 inch; 4.5—6 mm.

Sexual characters as in *hyperboreus*.

Color piceous without metallic lustre, inflexed posterior of the elytra testaceous. Legs testaceous, tibiæ piceous.

Post coxal process short, transparent.

Two specimens are before me, the larger, from Clear Lake, California, has the elytra more distinctly punctured than the smaller and the punctures more numerous, the same being the case on the abdomen. They are however representatives of one species.

Clear Lake, California, and Vancouver, (Crotch).

Q. prostans n. sp.—Head orbicular, a little wider than long, posteriorly strongly constricted, front slightly triangularly impressed, without punctures, a small puncture at the base of the antennæ, a larger at the inner margin of the eye, three others arranged longitudinally on the occiput one of which touches the eye. Labrum truncate with a slight impression at middle. Eyes large and very prominent. Infra-orbital ridge obsolete. Antennæ slender, attaining the middle of the thorax, second and third joints equal, last obliquely truncate. Thorax a little longer than wide narrower in front, sides feebly, base more distinctly arcuate and with punctures as in *hyperboreus*, surface smooth, shining. Scutellum smooth. Elytra as wide as the thorax, conjointly a little longer than wide, a feeble longitudinal impression along the suture a little deeper at the tip, surface shining, with moderately coarse and rather closely placed punctures and few blackish hairs. Abdomen very sparsely punctate and with few black hairs, the segments with a slight impression each side of the middle in which the punctuation is denser and finer and the pubescence greyish, beneath sparsely punctulate. Femora sparsely punctured, tibiæ spinulose externally. Length .22 inch; 5.5 mm.

The sixth ventral of the male is emarginate, the anterior tarsi dilated, in the female very feebly dilated.

The color is uniformly black and shining, with a feeble æneous tinge, the legs and anterior coxæ testaceous and the tibiæ piceous. Antennæ piceous.

Occurs in northern California and Vancouver.

Q. seriatus n. sp.—Head oval strongly constricted behind, front without punctures, at base of antennæ a small puncture, two at the inner margin of each eye, one on the occiput, and one behind the eye. Labrum truncate. Eyes large and prominent. Antennæ attaining the middle of the thorax, second joint as long as the third. Thorax longer than wide, narrower in front, sides feebly, base more broadly arcuate, surface smooth and shining, anteriorly on the disc three punctures, laterally a row also of three, marginal punctures small and distant. Scutellum smooth, shining. Elytra a little wider than the thorax, conjointly longer than wide, surface shining and with rows of punctures arranged as follows: a scutellar series of three punctures, a row of six or seven beginning at the humeri, an intermediate series of three or four, a marginal series of six or seven exterior to which are a few irregularly placed punctures. Abdomen very sparsely punctate, segments vaguely transversely impressed and with a slight space with greyish hair, beneath more coarsely punctured than above. Femora sparsely punctulate, tibiæ finely spinulose externally. Length .24 inch; 6 mm.

The sixth ventral of the male is emarginate, the anterior tarsi feebly dilated.

The color is black, shining, the elytra æneous, the antennæ are pale rufous. The femora are rufo-testaceous, the tibiæ slightly piceous.

Post coxal process short, translucent.

One specimen, Vancouver, Crotch.

Q. puncticeps n. sp.—Head orbicular, strongly constricted behind, two frontal punctures deeply impressed and with numerous punctures above each eye on the vertex and occiput and behind the eyes. Labrum truncate. Eyes large, oval, oblique and prominent. Infra-orbital ridge nearly obliterated. Antennæ slender, nearly attaining the base of the thorax, second joint nearly as long as the third, last joint obliquely truncate. Thorax as long as wide, narrower in front, sides feebly base more broadly arcuate, and with punctures as in *hyperboreus*, surface smooth, shining. Scutellum smooth. Elytra slightly wider than the thorax, conjointly longer than wide, a moderate impression common to both elytra at the tip of the suture and a very vague oblique impression of the disc, surface very shining and with moderate punctures very regularly but not densely placed, sparsely pubescent. Abdomen very sparsely punctate and pubescent, beneath more distinctly punctured than above. Femora punctulate, tibiæ spinulose externally. Length .30 inch; 7.5 mm.

The sixth ventral of the male is triangularly emarginate, the anterior tarsi are feebly and nearly equally dilated in both sexes.

The post coxal process is triangular, translucent.

The color is black, shining with decided æneous lustre, the antennæ and legs piceous.

Occurs at Vancouver, Crotch.

Q. ferox Lec. Proc. Am. Philos. Soc. 1878, p. 388.—Head orbicular, strongly constricted behind, with the regular punctures as in *vernix* and numerous smaller ones on the vertex above the eye and at the side of the head behind. Labrum truncate. Eyes broadly oval, slightly oblique, subtruncate in front.

Infra-orbital ridge well marked. Antennæ slender, nearly as long as head and thorax, third joint twice as long as the second, last slightly obliquely truncate. Thorax quadrangular slightly longer than wide, sides nearly parallel, slightly arcuate in front, base broadly arcuate, a discal series of two punctures one at the apical margin, another posterior to it and rather distant, surface smooth, shining. Scutellum smooth. Elytra slightly wider than the thorax, conjointly longer than wide, sutural stria vaguely impressed and with three or four vague punctures, a median discal series of five or six and numerous, densely placed punctures on the deflexed portion of the lateral margin, surface shining. Abdomen moderately coarsely and densely punctured, sparsely pubescent, beneath as above. Femora punctulate, tibiæ spinulose, tarsi glabrous above. Length .44 inch; 11 mm.

The sixth ventral of the male is broadly emarginate. The anterior tarsi are dilated in both sexes but more so in the male.

Color black shining, legs piceous, tarsi usually paler. Abdomen iridescent.

Post coxal process short and broad, translucent.

Occurs from Massachusetts to Canada, Florida and Louisiana.

Q. vernix Lec. Proc. Am. Phil. Soc. 1878, p. 389.—Head oval, slightly longer than wide, moderately constricted behind, surface smooth, shining, and with a small puncture at the base of the antennæ, one at the margin of the eye in front, another more posterior, one behind the eye and numerous small punctures at the side of the head beneath. Labrum entire, arcuate in front. Eyes oval, slightly oblique, subtruncate in front. Infra-orbital ridge well marked. Antennæ slender, attaining the middle of the thorax, second joint shorter than the third, last joint obliquely truncate. Thorax relatively large, broader than long, narrower in front, sides moderately, base more arcuate, surface smooth, shining, anteriorly two discal punctures on each side, another near the side in front, marginal punctures small. Scutellum smooth. Elytra as wide as the thorax, conjointly a little wider than long, a deep sutural stria with one puncture near the scutellum, a discal series of four or five punctures, deflexed portion of elytra rather densely punctured. Abdomen very sparsely punctate and sparsely pubescent, beneath as above. Femora punctulate, tibiæ spinulose externally, tarsi glabrous above. Length .48 inch; 12 mm.

The sixth ventral of the male is merely truncate, in female arcuate; the anterior tarsi in both feebly dilated.

The post coxal process is short, triangular and corneous.

The color is black highly polished, the abdomen iridescent.

Occurs in Massachusetts, Canada, Illinois, Michigan, but rare.

I have repeated this description to make it correspond in scope with the others in the paper. In the original description Dr. Leconte says there is but one discal thoracic puncture, but by the Erichson method of numeration there are two by counting the one at the apical margin, the fact being the same, but merely otherwise described.

Synopsis of the species of CYCHRUS inhabiting Boreal America.

BY GEORGE H. HORN, M. D.

THE generic name Cychrus in the title is used in a general way to include all the species described from time to time under the names *Sphæroderus* and *Scaphinotus* as well as *Cychrus*.

The generic characters of these have been so often made known in the books that it seems hardly necessary to repeat them in detail. I will therefore mention those which may be necessary to illustrate the meaning of various expressions made use of in the following pages.

The head is elongate, more or less constricted behind the eyes although at times hardly perceptibly, the eyes are more or less prominent and distant from the apical margin of the thorax except in *Sphæroderus* and *C. elevatus*.

The antennæ are slender and vary in length from a half to three-fourths the length of the body, the basal joint in several species becomes enlarged and stout in proportion to the other joints.

The genal margin of the head, that is the portion of the head which encloses the buccal cavity at the side and directly behind the base of the mandibles, shows some points of variation which are more than specific in their nature. In the *Scaphinotus* group alone this portion of the head is very feebly expanded, and as the base of the maxillæ is the portion immediately beneath this plate, when the latter is feebly developed the maxillæ become visible from above.

The parts of the mouth do not exhibit any striking differences. In *angusticollis* the inner lobe of the maxillæ is furnished on the inner side with a row of moderately long, stout bristles, while in all the other species there are merely hairs or pubescence.

The sexual characters are of the greatest importance in the arrangement of the species.

In those species grouped below under the name *Cychrus*, the anterior tarsi exhibit no sexual characters whatever, they are neither more dilated nor otherwise pubescent in the male than in the female. In *Sphæroderus* on the other hand, the anterior tarsi of the male are broadly dilated and densely spongy pubescent beneath. In the other divisions, *Pemphus*, *Brennus* and *Scaphinotus*, the anterior tarsi are moderately dilated in the male and may be either spongy pubescent

beneath or papillose, the distinction being for me of some importance and is made use of in several instances for the separation of species.

The characters above mentioned with others of minor importance have induced me to adopt nearly all the divisions which have already been proposed. *Sphæroderus* and *Scaphinotus* are in the books since many years, while *Brennus* and *Pemphus* are due to Motschulsky, who, while recognizing the fact that they should be distinct, gave no characters of value for their separation. I adopt the names in order that any further increase of nomenclature may be avoided.

Briefly defined these divisions are as follows:

Anterior tarsi broadly dilated in the male.
Genæ dilated covering the maxillæ.
Legs stout, femora subclavate.....SPHÆRODERUS.
Anterior tarsi narrowly dilated in the male, the dilated joints always longer than wide.
Genæ not dilated, maxillæ exposed, legs slender.....SCAPHINOTUS.
Genæ dilated, maxillæ covered.
Inner lobe of maxillæ with a row of long stiff bristles, legs very elongate, the posterior unequal in the sexes. Elytra very feebly sculptured.....PEMPHUS.
Inner lobe of maxillæ with at most a few hairs and some silken pubescence, legs moderate, similar in the sexes. Elytra striate or punctate.....BRENNUS.
Anterior tarsi of male not at all dilated.
Genæ dilated, covering the maxillæ, legs moderately stout.....CYCHRUS.

Regarding the validity of these divisions as genera, there has been and still may be some doubt. The characters seem to have full generic value and are so considered in other parts of the Carabidæ series. One thing appears quite certain; if either one of the above divisions is distinct from any other, they are all distinct among themselves, the only doubtful case being *Pemphus*.

SPHÆRODERUS Dej.

Head moderately elongate, more or less constricted behind the eyes, gula deeply transversely impressed; genæ moderately expanded covering the base of the maxillæ with very feeble trace of incisure. Antennæ slender, about half the length of the body, first joint moderately stout and longer than the third. Legs stout, the femora moderately clavate. Elytra regularly oval or oboval, striate striæ punctured. Anterior tarsi of male broadly dilated and densely spongy pubescent beneath on the first three joints, the fourth with a few papillæ.

The elytral sculpture exhibits a tendency to vary from the striate style

to the granular, resulting from a gradual breaking up of the intervals and the formation of elongated tubercles. This change begins at the sides and declivity of the elytra and finally invades the entire surface.

The species are not numerous but not readily distinguishable by description, the following characters seem to be the most constant.

Basal impressions of thorax broad and deep and with coarse deep punctures more or less confluent.
  Elytra oboval, sculpture decidedly granular.....**nitidicollis.**
Basal impressions of thorax linear and not very deep, the punctures rather fine and not confluent.
  Hind angles of prothorax very obtuse.....**stenostomus.**
  Hind angles of prothorax well defined.....**canadensis.**

C. (Sphæroderus) nitidicollis Chev. Guer. Icon. Reque An. p. 24, pl. 7, fig. 1, a—c; *niagarensis* Cast. Ann. Fr. 1832, p. 390; Lacord. Genera Atlas, pl. 2, fig. 3; *Brevoorti* Lec. Ann. Lyc. iv, p. 443; *Schaumi* Chaud. Bull. Mosc. 1861, ii, p. 499; *granulosus* Chaud. loc. cit. p. 497; *palpalis* Motsch. Bull. Mosc. 1865, iv. p. 312.—Moderately elongate, surface with cupreous or violet tinge. Head feebly elongate, genæ moderately dilated concealing the base of the maxillæ. Thorax broader than long, base and apex equal, sides arcuate, slightly oblique posteriorly, hind angles obtusely rounded, margin with a thickened bead, disc convex, anterior and median impressions feeble, basal transverse impression moderately deep, angular impressions broad and triangular, these and the transverse impression coarsely and deeply punctured. Elytra oval, usually broader behind the middle, surface variably sculptured, inflexed portion coarsely punctate. Length .48—.64 inch; 12—16 mm.

The elytral sculpture varies so that it is almost impossible to give any general description.

var. **Brevoorti** Lec.—Elytra at base deeply striate, striæ coarsely crenately punctured, intervals at sides and apex broken into numerous granules and elongate tubercles.

var. **nitidicollis** Chev.—Striæ of elytra almost entirely wanting, the intervals tuberculate, the tubercles forming three rows of larger ones between the smaller rows and the entire surface of the elytra with numerous small granules.

In all the species of this subgenus the sculpture tends to vary from the striate to the tuberculate, and thus to reproduce the characters of the true Cychrus form as represented in our fauna by *tuberculatus*.

On comparing this species with *stenostomus* there will not be found any great differences of general form; in the present the elytra are apt to be wider behind the middle, but this is by no means constant. The only character which seems to me to define the two is found in the fact that in this the impressions of the hind angles of the thorax are broad, deep and coarsely punctured, those of *stenostomus* are linear, less deep and scarcely at all punctate.

Occurs from the Hudson's Bay region to northern Virginia.

The figure given by Lacordaire is not characteristic, and I place that species here because the deep and coarsely punctured foveæ of the thorax are mentioned; *palpalis* Motsch., is not so described that it can be placed certainly in synonymy, but as the choice is between this and *stenostomus* it does not much matter where it is put as it is the youngest name in the entire synonymy. *C. Schaumi* Chd., belongs more especially to the var. *nitidicollis*, while *granulosus* is *Brevoorti*.

C. (Sphæroderus) stenostomus Weber, Obs. Ent. p. 43; Knoch, Neue Beitr. i, p. 190, pl. 8, fig. 13; *var. Lecontei* Dej., Species ii, p. 15; Lec. Ann. Lyc. iv, p. 442; *var. bicarinatus* Lec., Trans. Am. Philos. Soc. 1853, p. 399.—Thorax broader than long, sides arcuate, slightly oblique posteriorly, hind angles obtuse, basal transverse impression moderate, the longitudinal impressions rather sharply defined and moderately elongate, with very few punctures. Length .48—.60 inch; 12—15 mm.

These characters are the only ones capable of use for the separation of this and the preceding species, and it is moreover extremely difficult to determine at times whether specimens should be called *Lecontei* or *Brevoorti*.

The following are the variations:

var. **stenostomus** Weber.—Elytra oval, moderately convex, surface striate, striæ deep and with deep closely placed punctures, intervals convex, entire on the disc, very slightly confused at the sides and near the tip.

var. ————.—Elytra as above, intervals interrupted in the apical region one-third from apex, but without becoming granulate.

var. **Lecontei** Dej.—Intervals interrupted from the middle to the apex, at the apical third the interruptions assume the form of tubercles often elongated.

var. **bicarinatus** Lec.—Intervals interrupted except in the basal region, near the apex the tubercles forming three series of larger tubercles with the intervals filled with granules, on each elytron the intervals four and eight somewhat elevated the twelfth forming quite an elongate carina.

After a careful study of the above forms it seems to me impossible to separate them specifically, and I am prepared to say that the differences in elytral sculpture have no value as they merge insensibly from one form into another.

Occurs from Michigan to North Carolina.

C. (Sphæroderus) canadensis Chaud., Bull. Mosc. 1861, ii, p. 498.—Moderately elongate, violaceous, margin bluish. Thorax slightly wider than long, sides in front arcuate, posteriorly oblique, hind angles distinct, basal transverse impression feeble or entirely wanting, longitudinal impressions moderately long, sharply defined and with very few punctures. Elytra oval, surface deeply striate, striæ crenately punctured, intervals convex, slightly interrupted at the sides, more distinctly at apex, but not tuberculate. Length .44—.48 inch; 11—12 mm.

This species seems quite distinct from the others by the hind

angles of the thorax being distinct and not obtusely rounded, its more elongate form and by the smoothness of the basal sculpture of the thorax.

Occurs from Canada to Maryland.

SCAPHINOTUS Latr.

Head elongate, eyes usually moderately prominent, genæ not dilated, base of maxillæ exposed and visible from above, gula not transversely impressed. Antennæ slender, as long as three-fourths of the body, first joint longer than the third. Elytra striate, striæ punctured, intervals very slightly interrupted. Anterior tarsi moderately dilated in the male the first three joints either papillose or spongy pubescent beneath.

Irichroa Newm., is synonymous with the above.

The tarsal characters of the male are here useful in arranging the species.

Anterior tarsi ♂ moderately dilated, the first three joints papillose beneath.
- Thorax very widely margined, the hind angles prolonged backwards.
  - First joint ♂ anterior tarsi papillose over three-fourths of its surface..... **elevatus.**
- Thorax with moderately widely reflexed margin. First joint ♂ anterior tarsus with a slight papillose space at tip..... **viduus.**
- Thorax with very narrow margin.
  - Anterior tarsus ♂ as in *viduus*..... **Guyotii.**
  - Anterior tarsus ♂ as in *elevatus*..... **Ridingsii.**

Anterior tarsi of ♂ more distinctly dilated and densely spongy pubescent beneath, the first joint so clothed over nearly its entire surface.
- Thorax very narrowly margined..... **Andrewsii.**

C. (**Scaphinotus**) **elevatus** Fab., Mant. i, p. 198; Knoch, Neue Beitr. i, p. 188, pl. 8, fig. 12; Lec. Genera Atlas, pl. 2, fig. 4; *unicolor* Fab., loc. cit.; Oliv. Ent. iii, 35, p. 47, pl. 6, fig. 62; *flammeus* Hald., Proc. Acad. ii, p. 54; Lec. Ann. Lyc. iv, p. 440; *dilatatus* Lec., Trans. Am. Philos. Soc. x, p. 398; *var. heros* Harris, Bost. Journ. ii, p. 196; Lec. Journ. Acad. iv, pl. 4, fig. 13.—Form moderately robust, color variable from bluish to bright cupreous. Head moderately elongate, eyes prominent. Thorax (less the margin) cordate, sides in front arcuate posteriorly oblique, margin broad more or less reflexed, much wider posteriorly, the hind angles prolonged over the elytra, disc of thorax variable in convexity and impressions, surface slightly wrinkled, margin more or less punctate. Elytra broadly oval, moderately convex, margin reflexed, gradually narrower towards the tip, surface moderately deeply 16—18 striate, striæ crenately punctured, intervals moderately convex slightly confused at the sides and tip. Inflexed portion of elytra moderately densely punctate. Body beneath and legs smooth, shining. Length .60—1.12 inch; 15—28 mm.

The color is variable as already stated. The differences in appearance between *heros* and the ordinary forms of the species, which have

caused it to be separated, are practically of no moment whatever. The relative width of the true disc to the dilated margin remains the same while the extent to which it is bent upward varies, so that quite a different appearance may result.

The differences between this species and *viduus* are found in the thoracic margin and the anterior tarsi of the male. Here about one-half the first joint is papillose while in *viduus* merely a small space near the tip.

Occurs from the Middle Atlantic States to Colorado and thence southward, as a general rule the further south the larger the specimens.

C. (Scaphinotus) viduus Dej., Species ii, p. 12; *unicolor* ‡ Knoch, Neue Beitr. i, p. 187, pl. 8, fig. 11; Say, Trans. Am. Phil. Soc. ii, p. 71; *Leonardi* Harris, Bost. Journ. ii, p. 195; *violaceus* Lec., New Species, 1863, p. 4.—Body black, thorax purplish, elytra purplish or cupreous. Head elongate smooth, eyes moderately prominent. Thorax as wide as long, sides in front moderately arcuate, posteriorly oblique, margin moderately wide, broader at base than apex, hind angles arcuate, variably reflexed, disc at middle nearly smooth, at sides and on the margin sparsely punctate. Elytra ovate narrowed toward the tip, moderately ventricose, margin narrowly reflexed but a little wider near the base, surface deeply striate, striæ crenato-punctate, intervals convex, slightly confused at sides and more so at apex, inflexed portion of elytra punctate. Body beneath smooth, shining. Length .70—1.16 inch; 18—29 mm.

After an examination of the type of *violaceus*, I became convinced that it is merely a specimen of the present species whose development has been retarded. It agrees in all essential particulars excepting that it is much smaller. The specimen is a male and its tarsal characters are those of *viduus* and not at all of *Andrewsii*.

The States of New York, Pennsylvania and Virginia, are the habitat of this species, especially in the mountainous regions.

C. (Scaphinotus) Guyotii Lec., Proc. Acad. 1866, p. 363.—Moderately elongate, black, surface with violaceous tinge. Head elongate, smooth. Thorax as wide as long, cordate, sides in front moderately arcuate, posteriorly oblique, hind angles obtuse, margin narrowly reflexed, disc smooth at middle, punctured at sides and base, basal impression deep. Elytra oval, moderately convex, surface deeply striate, striæ crenately punctured, intervals at sides very feebly at apex more distinctly confused, margin very narrow, inflexed portion punctured. Body beneath smooth, shining. Length .90 inch; 22.5 mm.

This species greatly resembles *Andrewsii* but is of more robust form, and is in fact intermediate between that species and *viduus*. The margin of the thorax is a little more reflexed than in the former and very much less than in the latter.

Occurs in the mountainous regions of North Carolina.

C. (Scaphinotus) Ridingsi Bland., Proc. Ent. Soc. Phil. i, p. 353.—Moderately elongate, black, upper surface distinctly violaceous. Head elongate, smooth. Thorax cordate, a little longer than wide, sides in front feebly arcuate, posteriorly oblique, hind angles obtuse, margin narrowly reflexed, disc feebly convex, impressions moderate, surface not punctured. Elytra oval, moderately convex, margin very narrow, surface striate, striæ crenately punctured, intervals convex, slightly confused at the tip, inflexed portion sparsely punctate. Body beneath smooth. Length .50 inch; 12.5 mm.

For a long time I had been unwilling to recognize this as a distinct species, preferring to consider it a diminutive *Andrewsii*, but whatever its affinities may be they are certainly more removed by its male tarsal characters from that species than from *Guyotii*. The first three joints of the anterior tarsi ♂ are papillose beneath, and the first joint is so clothed over three-fourths of its surface.

The specimens I have seen were all collected by Mr. Ulke, near Cresson Springs, Pennsylvania.

C. (Scaphinotus) Andrewsii Harris, Bost. Journ. ii, p. 195; *Germari* Chaud., Bull. Mosc. 1861, ii, p. 495.—Form slender, moderately elongate, surface more or less cupreous. Head elongate, eyes moderately prominent. Thorax longer than wide, subcordate, sides in front feebly arcuate, posteriorly oblique, hind angles obtuse, disc feebly convex, impressions moderate. Elytra oval, usually broadest behind the middle, moderately convex, margin very narrow, surface deeply striate, striæ crenately punctured, intervals somewhat confused near the tip, inflexed portion of elytra moderately densely punctured. Body beneath smooth, shining. Length .74—.86 inch; 19—22 mm.

This species is nearly as slender as *angusticollis*. Its thorax is much narrower than in *Guyotii* which it also resembles otherwise. The only character on which any positive reliance can be placed is in the sexual peculiarities of the anterior tarsi of the male.

Occurs from Pennsylvania to North Carolina.

PEMPHUS Motsch.

Bull. Mosc. 1865, ii, p. 312.

Head elongate, eyes not prominent, genæ moderately dilated covering the base of the maxillæ and with a slight incisure. Gula not transversely impressed. Inner lobe of maxillæ armed with rather long stout spines. Anterior tarsi of male with three joints dilated and densely spongy pubescent beneath, the first joint so covered over nearly the entire surface, the fourth with a few papillæ at middle. Legs long and slender and varying in the sexes, the posterior longer in the male.

The general appearance of the species belonging here is totally different from any other in the entire series and marks it as a very

distinct type. The surface is opaque and of velvety aspect, the elytra varying in color from reddish brown to deep black, the margin from purple to golden and with large punctures; the surface of the elytra has extremely feeble sculpture in which faint traces of striæ are visible with obsolete punctures. Three of the intervals are very slightly wider and somewhat more convex. The difference in length between the posterior femora of the two sexes is partly real and partly apparent only, a measurement in two specimens of equal size shows that in the male the femora are .40 inch long, in the female .35 while in the former sex they appear to project at least one-third behind the tips of the elytra, this results from the greater abruptness and less prolongation of the tip in the ♂.

The maxillary character is of the greatest importance in separating this species. Everywhere else in the Cychrus series the inner lobe of the maxillæ has merely silken hairs with a few shorter and stiffer hairs placed in a row, corresponding with the row of long stiff spines noticed here.

One species in our fauna possesses the above characters.

C. angusticollis Fisch., Ent. Russ. ii, p. 46, pl. 46, fig. 2; loc. cit. iii, p. 143; Dej. Spec. v, p. 526; *velutinus* Menet. Bull. Ac. Petrop. 1844, ii, p. 53.—Form elongate. Head elongate, genæ broadly notched. Thorax elongate cordate, sides in front feebly arcuate, posteriorly feebly sinuate, hind angles rectangular, disc nearly flat, impressions feeble. Elytra elongate oval broadest behind the middle, feebly convex, margin bluish or golden and with large punctures, surface very obsoletely striate, punctures obsolete, three of the intervals somewhat more distinct, inflexed portion not distinctly punctate. Length .66—1.00 inch; 17—25 mm.

Under this name I think it advisable to unite the two species above cited. The Arctic forms have a slightly shorter thorax and the elytra brown and the margin more golden; those from northern California and Oregon, are of velvety black color and with the margin black or bluish, the thorax is also longer.

Occurs from Alaska to northern California.

BRENNUS Motsch.

Bull. Mosc. 1865, ii, p. 311.

Head elongate, neck not dilated, genæ in front of eyes dilated, covering the base of the maxillæ and divided by an incisure varying in extent in the species; gula either plane or transversely impressed, front moderately convex or cristate. Eyes feebly or moderately convex, usually distant from the thorax. Antennæ slender longer than half the body, the basal joint usually normal but in several species stout,

always decidedly longer than the third. Tarsi slender in both sexes, the anterior slightly dilated in the male and with two or three joints spongy pubescent beneath.

In this genus the elytra are either striate or striato-punctate, the inflexed portion either smooth or obsoletely punctate, the apex usually gradually declivous. The palpi of the male have a broader terminal joint than those of the female, and the tarsi slightly dilated with a variable number of joints pubescent.

This genus is composed of species peculiar to the true Pacific Coast fauna of North America, which extends from Alaska to San Diego, and is limited on the east by the snow-clad Sierras of California and their extension northward to Alaska.

The species are again capable of subdivision on characters not sexual, as follows:

Head cristate to a greater or less extent, gula deeply transversely impressed. Three joints of anterior tarsi ♂ pubescent beneath.
Basal joint of antennæ very stout and longer than the third, genæ deeply incised.....Group I.
Head feebly convex, gula not transversely impressed, genæ more or less incised.
Basal joint of antennæ normally slender.....Group II.

Group I.

Head cristate, gula deeply transversely impressed, antennæ slender, basal joint much stouter than normal, genæ beneath the eyes incised. Anterior tarsi with three dilated joints, which are spongy pubescent beneath, fourth joint without brush of hairs.

Two species occur in our fauna.

Front strongly cristate, occiput deeply transversely impressed, basal impression of thorax deep. Elytra with rows of moderate punctures which are often more or less confused.....**cristatus.**
Front feebly obtusely carinate, occiput not impressed, basal impression of thorax feeble. Elytra striate, striæ distantly punctured.....**rugiceps.**

C. cristatus Harris, Bost. Journ. ii, p. 200; *reticulatus* Mots. Käfer Russ. p. 90; Mann. Bull. Mosc. 1852, ii, p. 292; 1853, iii, p. 121.—Moderately elongate, black, shining. Head moderately elongate, vertex cristate, crest irregular at summit in front, suddenly declivous posteriorly by a deep occipital impression, supra orbital ridges strongly elevated, genæ dilated and beneath the eyes very deeply incised so as to appear bilobed, surface impunctured. Antennæ slender, the basal joint large and stout. Thorax cordate, posteriorly constricted, hind angles rectangular, sides in front arcuate, disc moderately convex, anterior and posterior impressions deep, the median less impressed, apical bead posterior to the apical margin, side margin with a moderately thickened bead, surface smooth. Elytra oval, convex, margin very narrow, surface faintly

striate, striæ often entirely obsolete and replaced by moderately large punctures, the regular striæ with smaller punctures, intervals near the sides and tip more or less interrupted and subgranular, inflexed portion of elytra obsoletely sparsely punctate. Body beneath and legs impunctate. Length .58—.72 inch; 15—18 mm.

The number of striæ cannot be definitely stated, it is however over sixteen, the punctures of the normal striæ appear to become smaller while near the tip those of the intervals become somewhat larger and the count thereby is apt to be confused. The hind angles of thorax are sometimes slightly divergent. The males have the first three joints slightly dilated and papillose beneath, the space so clothed being very small on the first joint.

Occurs not uncommonly near San Mateo, southward of San Francisco, California.

C. rugiceps Horn, Trans. Am. Ent. Soc. iv, 1872, p. 143.—Form moderately elongate, black, feebly shining. Head moderately elongate, vertex elevated into an irregular obtuse crest, supra-orbital ridges well defined, front transversely impressed between the base of the antennæ, occiput not impressed, genæ moderately dilated, incised beneath the eyes. Antennæ slender, basal joint large and stout. Thorax cordate, moderately constricted posteriorly, sides in front arcuate, posteriorly sinuate, hind angles rectangular, margin with a slightly thickened bead, disc feebly convex, anterior, median and basal lines not deeply impressed. Elytra regularly oval, margin narrowly reflexed, disc moderately convex, surface with about eighteen moderately deeply impressed striæ in which the punctures are coarse but not approximate, intervals convex, inflexed portion nearly smooth. Body beneath and legs smooth. Length .54—.66 inch; 14—17 mm.

The sculpture of the head recalls that seen in certain species of Clivina but with a more elevated carina. The thorax by its more feebly impressed line recedes from the other cristate species and approaches *punctatus*. The male characters are as in *cristatus*.

I have seen but two specimens one of each sex, both collected by Lord Walsingham, in Oregon. The male is now in my cabinet.

Group II.

Head not cristate, antennæ slender, basal joint not thickened, genæ moderately explanate and more or less incised, gula not transversely impressed. Anterior tarsi of male with either two or three joints papillose or spongy pubescent beneath, sometimes with the fourth joint slightly papillose.

This group contains the larger number of species which represent more definitely the generic idea than those of the other two groups, and by their homogeneity of appearance and general characters they form a very natural assemblage, with such close resemblances that the

females of several species can only be distinguished by considerable experience.

The further distribution of the species is as follows:

Anterior tarsi of male with the first three joints papillose beneath, the fourth also with a few papillæ.....A.
Anterior tarsi of male with the first three joints papillose beneath, the fourth without papillæ.....B.
Anterior tarsi of male with the first two joints only papillose.....C.

A.

Under this head we have species remarkable by their much less convexity, the rather deep longitudinal impressions in the thoracic angle which extend considerably forward, the smaller number of elytral striæ which do not exceed fourteen, by the marginal series of punctures being larger than those of the striæ, and finally by the color of the elytra departing from the normal black becoming slightly bluish, cupreous or violet.

Three species belong here distinguished as follows:

Thorax much wider than long, strongly constricted posteriorly, disc of elytra not much convex.....**cordatus.**
Thorax cordate, not wider than long, elytra with convex disc.
Sides of thorax posteriorly oblique with scarcely a trace of sinuation, elytra cupreous with greenish or golden margin.....**marginatus.**
Sides of thorax distinctly sinuate, hind angles rectangular, elytra slightly purplish.....**dissolutus.**

C. cordatus Lec., Trans. Am. Philos. Soc. 1853, p. 399.—Black with slight tinge of purplish, moderately elongate, subdepressed. Head moderately elongate, smooth, shining, genæ very slightly incised. Thorax transversely cordate, broader than long, sides strongly arcuate, posteriorly deeply sinuate, hind angles subrectangular, disc nearly flat, basal transverse impression deep, longitudinal impressions deep near the base, gradually feebler in front, anterior and median impressions feeble, surface smooth, shining. Elytra elongate oval, more attenuate toward the tip, disc subdepressed, margin narrowly reflexed, surface striate, striæ with deep coarse punctures which are often confluent and invade the intervals, inflexed portion of the elytra very obsoletely punctate. Body beneath smooth and shining. Length .48—.56 inch; 12—14 mm.

This species has at a glance much the appearance of a Nebria. As in the other species of this group the lateral striæ of the elytra are not confused.

Occurs near San Mateo, California; rather rare.

C. marginatus Fisch., Ent. Russ. i, p. 79, pl. 7, fig. 1; Dej. Spec. ii, p. 12; Esch. Mem. Mosc. 1823, vi, p. 98; Mann. Bull. Mosc. 1843, p. 185.—Moderately elongate, black, elytra cupreous with greenish-golden margin. Head moderately elongate, smooth shining, genæ distinctly incised. Thorax cordate, scarcely wider than long, sides in front arcuate, posteriorly oblique very feebly

sinuate, disc nearly flat, subopaque, impressions moderate. Elytra oval scarcely more attenuate posteriorly, margin narrowly reflexed, disc convex, surface striate, striæ deep and with coarse punctures, intervals convex and often interrupted so as to become subgranular on the declivity. Body beneath smooth shining. Length .50—.64 inch; 12—16 mm.

var. **Fulleri**.—Under this head I place certain specimens from Oregon, of larger size and rather more robust form than the above, in which the surface is black with very slight purplish tinge, the margin of the elytra being merely slightly more purple. The sides of the thorax are scarcely sinuate and resemble the normal form above described, otherwise I would have considered the specimens to be *dissolutus*. Length .60—.64 inch; 15—16 mm.

This species is very common in Alaska and to the southward, variety *Fulleri* occurs in Oregon.

C. dissolutus Schaum, Berlin Zeitschr. 1863, p. 72, pl. 3, fig. 6.—Form moderately elongate, black with slight tinge of blue. Head moderately elongate, shining, slightly transversely wrinkled and behind the eyes a faint trace of constriction, genæ rather deeply triangularly incised. Thorax cordate as long as wide, sides in front arcuate, posteriorly moderately sinuate hind angles rectangular, basal transverse impression deep, the others moderate, surface nearly flat very feebly shining. Elytra oval slightly attenuated at tip, disc convex, surface deeply striate, striæ punctured, intervals convex often interrupted near the sides and declivity, inflexed portion obsoletely punctate. Body beneath smooth shining. Length .64 inch; 16 mm.

This species differs from the preceding species principally in the sinuate sides of the thorax and the more deeply incised genæ. In general appearance it resembles the variety *Fulleri* above noted. The interruption of the intervals near the tip in some specimens causes a granulated or tuberculate appearance, as is the case in Schaum's type and another in Leconte's cabinet.

Occurs in California.

B.

The following series contains species with elytra much more convex than in the preceding, the longitudinal impressions of the thorax much feebler. The color is always deep black, moderately shining. The striæ are usually very numerous about sixteen or eighteen in number, but it is almost impossible to count their number as those near the margin in several species become confused. In one species (*interruptus*), the striæ do not exceed fourteen in number and the marginal series of punctures is large as in *marginatus*, but the tarsi are as in the other species, that is, there are three joints papillose beneath in the anterior pair ♂, and the fourth joint is glabrous at middle and with merely a few short spinous hairs at the sides. By its sculpture *interruptus* unites series B and A, in the same manner that *minus* does B and C.

The species here included are five in number.

Elytral striæ not exceeding 14 in number.....**interruptus.**
Elytral striæ 16—18 in number.
Sides of thorax posteriorly oblique.....**obliquus.**
Sides of thorax posteriorly sinuate.
Elytra striate punctures rather fine.
Thorax usually longer than wide, feebly sinuate posteriorly, margin very narrow and very feebly or not at all reflexed, elytral striæ scarcely at all confused at the sides.....**striatus.**
Thorax wider than long, sides posteriorly deeply sinuate, margin wider and distinctly reflexed, outer three or four elytral striæ much confused behind the middle.....**ventricosus.**
Elytra with extremely fine striæ punctures large.....**minus.**

C. interrnptus Menet., Bull. Ac. Petrop. 1844, ii, p. 54; Motsch. Bull. Mosc. 1859, iii, p. 162, pl. 3, fig. 10; *ventricosus* ‡ Motsch. Bull. Mosc. 1845, iv, p. 338; 1859, iii, p. 162, pl. 3, fig. 9; *constrictus* Lec. Trans. Am. Philos. Soc. 1853, p. 398.—Form moderately robust, black, shining. Head moderately elongate, smooth, frontal margin with slight longitudinal impression, genæ rather deeply incised. Thorax broadly cordiform, sides arcuate in front, deeply sinuate posteriorly, hind angles rectangular, disc feebly convex, impressions moderate. Elytra rather broadly oval, convex, margin narrowly reflexed, disc deeply 14-striate, striæ with coarse deep punctures invading the intervals, the latter convex and smooth, inflexed portion of the elytra sparsely obsoletely punctate. Body beneath smooth, shining. Length .56—.64 inch; 14—16 mm.

This species in common with nearly all in the subgenus has given considerable trouble in its proper definition. With both sexes the difficulty is narrowed down to its separation from *ventricosus*, from which it may be known by the lesser number of the elytral striæ with those at the sides, entire or very nearly so. Its smaller size and more constricted thorax are also tolerably constant characters. It also resembles in form *dissolutus*, but the form of thorax, in the absence of the male, will separate it.

The species determined by Motschulsky to be this, and so figured, is undoubtedly correct, the second reference may be in doubt, as his very bad figure vaguely represents one of the many variations of *ventricosus* in my cabinet, although I do not believe that he would have considered one the female of the other without good reason, for with all his synonymical faults he was a close observer.

Occurs at San Mateo, California, and rather common.

C. obliquus Lec., Trans. Am. Ent. Soc. 1868, p. 61.—Form moderately robust, black, slightly shining. Head moderately elongate, genæ feebly notched or sinuate. Thorax cordate, as wide as long, sides in front arcuate, posteriorly oblique, not sinuate, disc feebly convex, impressions feeble. Elytra rather broadly oval, convex, deeply striate, striæ punctured, intervals feebly convex, somewhat interrupted at the sides and apex, inflexed portion sparsely punctate. Body beneath smooth, shining. Length .54—.64 inch; 13.5—16 mm.

This species is easily known in this group by the oblique sides of the thorax, in this respect however it resembles *marginatus* var. *Fulleri*, but from this it may be known by the elytral striæ numbering eighteen.

The specimens I have seen have been reported from Sacramento, San Diego and Los Angeles.

C. striatus Lec., Proc. Acad. 1859, p. 69; *crenatus* Motsch. Bull. Mosc. 1859, iii, p. 161, pl. 3, fig. 8.—Moderately elongate, black, shining. Head elongate, smooth, genæ deeply incised. Thorax somewhat variable in form, usually elongate cordate, sides in front arcuate, posteriorly moderately sinuate, hind angles rectangular, margin very narrow, disc feebly convex, impressions moderately deep. Elytra oval, moderately ventricose, surface deeply striate, striæ rather closely but not coarsely punctured, intervals convex, feebly interrupted at the sides and near the tip, inflexed portion obsoletely punctate. Body beneath smooth, shining. Length .60—.84 inch; 15—21 mm.

The elongate form of thorax is the essential character of this species, and although somewhat variable never approaches the form of *ventricosus*. The elytra are moreover more deeply striate and with finer punctures than in *ventricosus*. The form of thorax as given by Motschulsky for this species is a caricature, but that given of *ovalis* is accidentally quite near what belongs to this species.

All the specimens I have seen are from Tejon and Santa Barbara, California.

C. ventricosus Dej., Spec. v, 1831, p. 527; Esch. Zool. Atl. 1833, p. 21, pl. 25, fig. 1.—Moderately elongate, black, shining. Head moderately elongate, genæ acutely notched at the sides. Thorax cordate, as broad as long, sides in front arcuate, posteriorly deeply sinuate, hind angles rectangular, margin moderately reflexed, basal impression moderately deep, the others feebler, disc feebly convex. Elytra oval, ventricose, multistriate, striæ with punctures moderate and rather approximate, intervals feebly convex, inflexed portion obsoletely sparsely punctate. Body beneath smooth, shining. Length .64—.86 inch; 16—22 mm.

The differences between this species and *striato-punctatus* when the females only are present are not easy to make known by description, and will be fully dealt with after that species. The males once known the other sex can be determined, but even then a practised eye is of more value than empirical characters.

Numerous specimens have been sent me from time to time by Messrs. Edwards and Behrens of San Francisco, all of them having been collected near San Mateo or Crystal Springs.

I have a specimen in which the elytra are elongate oval, twice as long as wide, it is the extreme of my series and if seen alone with one of the fully ventricose specimens, might be supposed to represent

a distinct species. In this instance my series is very large. In fact I have drawn the descriptions of all the California species from observation of at least two pairs of specimens, and from this of fifteen pairs.

C. mimus Horn, Trans. Am. Ent. Soc. 1874, p. 20.—Moderately elongate, black, shining. Head moderately elongate, subopaque, genæ feebly notched. Thorax cordiform as wide as long, sides in front moderately arcuate, posteriorly slightly sinuate, hind angles rectangular, margin very narrow, disc flat opaque, impressions feeble. Elytra oval moderately ventricose, surface finely striate, striæ not impressed but with large moderately closely placed punctures, intervals irregular at the sides, inflexed portion obsoletely punctate. Body beneath smooth, shining. Length .58—.64 inch; 14.5—16 mm.

This species is a close imitation of *punctatus*, and differs from that species only in its sexual characters and by the elytra being rather less ventricose.

The only specimens I have seen were those collected by Mr. G. R. Crotch at San Bernardino, California.

C.

In this series are contained those species in which the anterior tarsi of the males have but two joints papillose beneath, the third and fourth being entirely glabrous at middle. The color of the species is black, subopaque in two species and moderately shining in the third.

They may be separated in the following manner:

Thorax posteriorly slightly sinuate, not constricted, surface subopaque, elytra ovate.

Elytra finely striate, striæ with rather coarse deep punctures. **punctatus.**

Elytra without striæ but with rows of rather fine punctures..... **subtilis.**

Thorax posteriorly constricted, sides posteriorly deeply sinuate, surface moderately shining, elytra longer oval.

Elytra finely striate, striæ finely punctured, the alternate intervals behind the middle with a row of punctures..... **striatopunctatus.**

C. punctatus Lec., Proc. Acad. 1859, p. 69; Mots. Käfer Russ. p. 90.—Moderately robust, black, feebly shining. Head moderately elongate, subopaque, genæ incised. Thorax cordate, a little longer than wide, sides in front moderately arcuate, posteriorly feebly sinuate, hind angles subrectangular, disc subopaque, feebly convex, basal impression deeper than the others, margin very narrow. Elytra oval, ventricose, with very fine scarcely impressed striæ which have deep and rather large punctures moderately closely placed, lateral intervals confused, inflexed portion of elytra very obsoletely punctate. Body beneath black, shining. Length .52—.70 inch; 13—18 mm.

This species and *mimus* of the preceding group resemble each other so closely that it is hardly possible to distinguish them. In

this species the hind angles of the thorax are less decidedly rectangular, in *mimus* very distinctly so.

Occurs rather abundantly at Tejon, two others were sent me from the Sierras, probably near Calaveras, by Henry Edwards, these latter are smaller and more convex.

C. subtilis Schaum, Berlin Zeitschr. 1863, p. 72, pl. 3, fig. 7.—Moderately elongate, black, subopaque. Head moderately elongate, smooth, genæ acutely incised. Thorax cordate, as broad as long, sides in front arcuate, posteriorly oblique with feeble sinuation, margin moderately reflexed, disc nearly flat, impressions feeble. Elytra oval moderately ventricose, not striate but with series of rather finely impressed punctures not closely placed, which are somewhat confused at the sides, inflexed portion sparsely punctate. Body beneath black, shining. Length .68—.80 inch; 17—20 mm.

This species has been supposed to be merely a variety of the next, but the narrower and not constricted thorax, with the elytral sculpture seem valid characters.

This species occurs at Los Angeles and Mariposa, California.

C. striatopunctatus Chaudoir, Bull. Mosc. 1844, iii, p. 476; *alternatus* Motsch. Bull. Mosc. 1859, iii, p. 162, pl. 3, fig. 12; *ovalis* Mots. loc. cit. fig. 11.—Moderately elongate, black, shining. Head moderately long, not punctured, genæ not incised but sinuate. Thorax broadly cordate, sides in front strongly arcuate, posteriorly deeply sinuate, hind angles rectangular, margin moderately reflexed, disc moderately convex, subopaque, anterior impression nearly obliterated, the median more distinct, the posterior deep. Elytra oblong oval, ventricose, margin moderately reflexed, surface with fine but distinctly impressed striæ with fine punctures, the intervals flat, each alternate interval near the apex ♂ or from behind the middle ♀ with a supplementary row of punctures, inflexed portion obsoletely punctured. Body beneath smooth, shining. Length .68—.96 inch; 17—24 inch.

There is no species of this group with which the present might be confounded, but with *ventricosus* of the preceding group there might be some difficulty. On comparing the two superficially, the thorax of the present is always distinctly broader and the disc more convex. The elytra here are finely striate, in *ventricosus* more deeply, while in their outline the present species has nearly truly elliptical elytra scarcely more narrowed at apex than at base, while in *ventricosus* the elytra are oval. This latter character requires considerable experience. There need be no difficulty at all in separating the males. On comparing the females it will be seen that the elytral striæ become deeper, and the intervals narrower behind the middle in *ventricosus*, while in the present species the intervals have the supplementary row of punctures.

This species occurs in the coast range region south of San Francisco, and is not rare.

CYCHRUS Fab.

Head moderately elongate, neck subglobular, genæ in front of eyes dilated and concealing the base of the maxillæ, not or extremely feebly incised, gula between the eyes deeply transversely impressed. Eyes convex, moderately prominent. Antennæ very little longer than half the body, the basal joint stout not much longer than the third. Tarsi similar in the two sexes, simple.

The sexes are distinguished by the dilated palpi of the male and the more ventricose elytra of the female. The legs are moderately stout and less elongate than in *Scaphinotus* or *Brennus*, but less stout than in *Sphæroderus*. The apices of the elytra are rather suddenly declivous.

To this genus belong the species of Europe, and three from our own fauna distinguished as follows:

Front flattened, sides of thorax sinuate posteriorly, elytra with series of tubercles.....**tuberculatus.**

Front transversely convex, sides of thorax oblique, elytra rugulose with traces of tubercles at declivity.....**Hemphillii.**

Front carinate, thorax angulate at middle, base slightly prolonged, hind angles rectangular, elytra finely punctato-striate.....**angulatus.**

C. tuberculatus Harris, Bost. Journ. ii, p. 200; Lec. Pacific R. R. Reports, 1857, App. i, pl. 1, fig. 6.—Black, opaque. Head moderately elongate, front flattened rugose, occiput coarsely punctured. Thorax cordate, as wide as long, base and apex equal to two-thirds the length, sides in front arcuate, posteriorly sinuate, hind angles rectangular, apical and basal impressions moderately deep, median line feebly impressed, surface opaque and coarsely punctato-rugose. Elytra oval, apex feebly narrowed, disc slightly flattened, surface opaque and with three series of larger smooth tubercles, the largest tubercle being at the end of the second row at the declivity, between these larger tubercles are rows of smaller ones and in the intervals between them all are small granules; inflexed portion of elytra coarsely punctate. Body beneath black and shining, punctures coarse, sparse and subobsolete. Length .80—.90 inch; 20—23 mm.

This species occurs in Vancouver, and at the present time rare.

C. Hemphillii n. sp.—Black, shining. Head moderately elongate, front transversely convex, surface rather coarsely punctured, confluently near the sides, less densely in front and posteriorly. Thorax slightly wider than long, subcordate, base and apex very nearly equal to the length, sides in front arcuate, posteriorly obliquely convergent, hind angles obtuse, apical impressions feeble, the basal deeper, median line moderately impressed, disc slightly convex, coarsely and deeply punctured and intricately rugose. Elytra oblong oval, wider behind the middle, apex rather abruptly declivous, disc convex, surface shining and rugulose, the sculpture being formed of elongate tubercles variously confluent becoming distinctly granular towards the sides and apex; inflexed portion of elytra coarsely punctured. Body beneath black, shining, sides of prothorax with large but distant punctures, abdomen sparsely punctulate at the sides. Length .60 inch; 15 mm.

The elytral sculpture is related to that of the preceding species, but here the tubercles become more nearly equal in size and are confluent. There still remain however, two distinct but small tubercles on the declivity, and an extremely faint trace of a triseriate arrangement.

This species was collected by Mr. Henry Hemphill, Wahsatch Mts. near Ogden, Utah, and kindly sent to me by Mr. Henry Edwards, at whose suggestion I have given the above name.

C. angulatus Harris, Bost. Journ. ii, p. 200.—Form moderately elongate, black with tinge of blue or purplish, surface shining. Head elongate, front carinate, supra-orbital ridges strong, genæ moderately dilated, feebly incised beneath the eyes, surface impunctured. Eyes feebly prominent. Thorax a little longer than wide, posteriorly strongly constricted, in front of constriction hexagonal, the sides being angulate, hind angles rectangular, margin very narrow, disc convex, the anterior, median and basal impressions deep, surface smooth, shining. Elytra elongate oval, very slightly narrowed at tip, surface moderately deeply 16-striate, the outer three striæ somewhat confused, striæ punctured, intervals convex and smooth, margin very narrow, the inflexed portion of elytra smooth. Body beneath smooth, shining, impunctured. Length .80 inch; 20 mm.

From the time of its description this species remained unknown to us in nature until 1868, a period of nearly thirty years, when Dr. Leconte was enabled to study a specimen. It will be at once known by its carinate head and angulate thorax.

The anterior tarsi of the male are not dilated, the terminal joint of the palpi is however broader.

It is still very rare in collections, and is found in Oregon and Vancouver.

Synopsis of the species of STAPHYLINUS and the more closely allied genera inhabiting the United States.

BY GEORGE H. HORN, M. D.

THE genera here included form a portion of a subtribe of the more comprehensive tribe Staphylinini, the characters of which are sufficiently dwelt upon in the Classification Col. N. A. pp. 63—64. They differ notably from the Quediini by the double thoracic margin as well as by the disappearance of the infra-orbital line on the head, which attains its highest development in the Bolitobii, becoming less distinct in the Quediini and disappearing entirely in the genera here included, and very rarely existing in a mere trace in certain Philonthus.

The metasternum posteriorly is deeply notched for the posterior coxæ, so that the transverse portion of the coxæ is covered by the metasternum as in the Quediini.

Characters of special moment will be noticed under the respective genera.

STAPHYLINUS Linn.

The species occurring within our faunal limits divide themselves naturally into two series.

The first contains those in which the head is sub-orbicular in form, the sides behind the eyes arcuate, the hind angles rounded. The thorax is also distinctly sinuate behind the middle and the scutellum pubescent but not velvety. The inflexed portion of the prothorax, that is, the smooth space between the two marginal lines, is here much narrower than in the following series, and the two lines never become absolutely confluent, they are however extremely close together.

To the second series a larger number of species belong. In these the head is subtriangular, the sides behind the eyes usually straight and either parallel or converging to the front, the hind angles suddenly formed and not rounded. The sides of the thorax are more or less arcuate, and not sinuate behind the middle. The scutellum is velvety. The inflexed portion of the thorax is broader than in the other series and the lines become confluent in front.

The thorax varies in this last group in punctuation; in some of the species of which *maculosus* may be taken as the type, the surface is very densely punctured and without lustre, and the pubescence very distinct and permanent. Others like *comes* and *cinnamopterus* have a rather coarser punctuation, but each puncture is distinctly separated from the others, the surface is thus more shining and the pubescence less permanent. Two species *exulans* and *prælongus* have the thorax irregularly sculptured.

The eyes in all the species are similarly formed with one exception, *femoratus*. In this the eyes occupy about two-thirds the length of the side of the head, while in the others hardly a third.

The other characters in the table require no further comment.

A.—Hind angles of head rounded, sides of thorax behind the middle sinuate.
Constriction of neck not deeply impressed above.....2.
Constriction of neck deep above and with golden pubescence.....4.
2.—Black, abdomen and legs entirely black.....**nigrellus.**
Legs always pale, antennæ pale.....3.

3.—Abdomen entirely black; surface not metallic.
Abdomen beneath with segments more densely punctured, and with golden pubescence along the anterior border.....**badipes.**
Abdomen beneath sparsely punctured, pubescence black and inconspicuous.....**pleuralis.**
Abdomen more or less red; surface distinctly metallic.
Last two segments of abdomen alone red.....**saphyrinus.**
Entire abdomen beneath red.....**luteipes.**

4.—Abdomen above very finely punctured, the second segment alone with a narrow apical border of golden hairs, beneath very sparsely punctate, hairs short, black.....**erythropterus.**
Abdomen more coarsely punctate, second segment narrowly bordered at apex, 4—5—6 with spot of golden pubescence; beneath segments 3—6 with golden pubescence at the sides along the anterior edge of the segments.....**cæsareus.**

B.—Head usually subtriangular, suddenly narrowed behind, hind angles obtusely prominent. Sides of thorax arcuate posteriorly, never sinuate, rarely parallel.
Thorax regularly and densely punctured over the entire surface, excepting at times a smooth median line.....5.
Thorax coarsely and irregularly punctured, with smooth spaces at the sides of the disc.....12.

5.—Abdominal segments beneath densely and finely punctulate along their anterior portion and with golden pubescence.....6.
Abdominal segments not densely punctulate, at most with the punctures very little closer anteriorly.....7.

6.—Abdominal segments above with golden pubescence at base and sides.
vulpinus.
Abdominal segments with double row of velvety spots at middle.
maculosus.

7.—Thorax subopaque, the punctuation very dense, pubescence very evident...8.
Thorax shining, pubescence scarcely evident, punctuation not very dense, the punctures being distinctly separate.....11.

8.—Elytra brownish or piceous, tip of abdomen always paler.....9.
Elytra black (sometimes with golden spot), abdomen black.....10.

9.—Eyes normal. Legs piceous.
Last ventral segment above and the sixth beneath pale. Thorax without smooth median line.....**mysticus.**
Fifth and sixth segments beneath pale. Thorax with smooth line.
tarsalis.
Eyes large, two-thirds the length of the head.....**femoratus.**

10.—Abdomen above with double series of small velvety spots.
Elytra entirely black, surface with simple punctures.....**tomentosus.**
Abdomen above without velvety spots.
Elytra usually with large spot of golden pubescence, occasionally entirely black, surface scabro-punctate.....**fossator.**

11.—Body above brownish or piceous, not metallic.....**cinnamopterus.**
Body above piceous, head and thorax sometimes variegated with paler spaces.
Abdomen piceous, segm. 1—5 beneath with lateral pale spots...**comes.**

Body above with more or less metallic lustre.
Legs entirely black.
Abdomen black, basal segments above with pale silken pubescence. Head, thorax and elytra violet.....**violaceus.**
Last two segments of abdomen red. Head, thorax and elytra blue. **rutilicauda.**
Legs bicolored. Abdomen black with sericeous pubescence at the base of each segment.
Head, thorax and elytra bronzed.....**viridanus.**

12.—Thorax as wide as long, sides feebly arcuate, disc moderately densely punctured and with smooth spaces in front on each side, and at middle posteriorly; color decidedly æneous.....**exulans.**
Thorax longer than wide, sides nearly parallel, disc with coarse, deep and irregularly placed punctures; color black with very feeble æneous tinge.....**prælongus.**

S. nigrellus n. sp.—Entirely black, subopaque. Head orbicular, densely punctured, a fine median smooth line. Eyes slightly oblique, oval, truncate in front. Antennæ a little longer than the head, piceous. Thorax longer than wide, not wider than the head, sides feebly arcuate, posteriorly slightly sinuate, base more distinctly arcuate, surface densely punctate with a smooth median line. Scutellum punctured, finely pubescent. Elytra a little wider than the thorax, conjointly as wide as long, very densely and more finely punctured than the thorax. Abdomen finely punctured, less densely on the terminal segments, the last four having numerous large irregularly placed punctures. Body beneath and abdomen sparsely punctate and shining. Legs black, tarsi brownish. Length .60 inch; 15 mm.

The entire surface is sparsely clothed with short black pubescence feebly evident on the head and thorax, more distinct on the elytra, feeble on the abdomen.

This species can not be confounded with any other in our fauna, it being the only one entirely black in this section.

Occurs in Oregon and northern California.

S. badipes Lec., *carbonatus* Lec., New Species, 1863, p. 36.—Piceous black, moderately elongate, legs and antennæ pale rufous. Head orbicular, densely punctured, front more sparsely. Eyes oval, slightly oblique, subtruncate in front. Antennæ a little longer than the head. Thorax longer than wide and a little narrower than the head, sides posteriorly distinctly sinuate, surface very densely punctate with a smooth median line. Elytra conjointly a little wider than long, densely punctate and clothed with short brownish hair. Scutellum punctate and sparsely pubescent. Abdomen above moderately densely and finely punctate, sparsely clothed with short black hairs, each segment with sparsely placed coarse punctures, segments 1—5 with a small spot of golden pubescence at the middle of the anterior margin, beneath moderately densely and finely punctured along the anterior borders of the segments, more sparsely posteriorly, segments 2—6 with golden pubescence along the anterior border. Metasternum coarsely punctured. Length .50—.66 inch; 12.5—17 mm.

The differences between this species and *pleuralis* are mentioned

under the latter. The color above and beneath is entirely piceous, and invariable as far as I have seen.

Occurs from the New England States westward through Canada, New York and Michigan.

S. pleuralis Lec., Proc. Acad. 1861, p. 343.—Form moderately elongate. Head orbicular, piceous, surface moderately densely punctate, more sparsely in front and less coarsely than the thorax. Eyes round, anteriorly subtruncate. Antennæ a little longer than the head, rufo-ferruginous. Thorax piceous, a little longer than wide and narrower than the head, sides posteriorly feebly sinuate, base arcuate, apex truncate the angles distinct but obtuse, surface densely punctured with a narrow smooth median line. Scutellum tomentose with black pubescence. Elytra conjointly wider than long, broader than the thorax, densely punctate, color varying from brownish to ferruginous and sparsely clothed with short ferruginous pubescence. Abdomen piceous, finely but not densely punctate, last four segments with coarse and deep punctures irregularly scattered, surface sparsely clothed with brownish pubescence, sericeous along the anterior portions of the segments, beneath very sparsely punctate and with inconspicuous pubescence. Metasternum coarsely punctured. Legs usually pale rufous, coxæ and femora sometimes piceous. Length .60 inch; 15 mm.

In well preserved specimens the head and thorax are clothed with very short brownish hair, which is apt to be entirely removed by the usual methods of collecting.

This species may be confounded with *badipes* which differs in a denser punctuation of head and thorax, a small golden spot of pubescence at the middle of the anterior margin of each segment, and the abdomen more punctured beneath with sericeous pubescence along the anterior margin of each segment.

Occurs in Utah, Oregon and Vancouver.

S. saphyrinus Lec., Proc. Acad. 1861, p. 342.—Form moderately elongate, body beneath piceous, legs rufous, head, thorax and elytra blue, abdomen piceous, segments 6—8 red. Head orbicular, densely punctured with very feeble smooth line posteriorly. Eyes oblique, subtruncate in front. Antennæ rufous or rufo-piceous, attaining the middle of the thorax. Thorax a little narrower than the head, longer than wide, slightly narrowed toward apex, sides feebly arcuate, posteriorly sinuate, surface densely punctured with distinct smooth median line. Scutellum punctured, pubescent. Elytra as wide or a little wider than the head, conjointly as wide as long, densely punctured, punctures finer than those of the thorax, sparsely clothed with brownish pubescence. Abdomen sparsely punctulate, clothed with brownish pubescence and on the last three with reddish pubescence. Body beneath and abdomen sparsely punctate, last three segments of latter red and with rufous pubescence. Legs pale rufous. Length .40—.60 inch; 10—15 mm.

A very pretty and distinct species, the larger specimens resembling superficially *rutilicauda* which differs in the form of head

and thorax. The differences between this and *luteipes* are found under that species.

Occurs in California, at Tejon and vicinity.

S. luteipes Lec., Proc. Acad. 1861, p. 342.—Form moderately elongate, body beneath and legs pale rufous, above bluish, abdomen above piceous varying to partially rufous. Head orbicular, slightly transverse, surface moderately densely punctured and with feeble smooth median line. Eyes slightly oblique, subtruncate in front. Antennæ extending to middle of thorax, rufous or piceous, the basal joint always pale. Thorax a little narrower than the head, longer than wide, broader at apex than base, sides distinctly sinuate behind the middle, surface densely punctured with moderately wide smooth median line. Scutellum punctured, pubescent. Elytra as wide as the head, a little longer than the conjoined width, surface more densely and finely punctured than the thorax and sparsely clothed with brownish pubescence. Abdomen above sparsely and indistinctly punctulate, sparsely clothed with brownish pubescence. Body beneath and abdomen sparsely finely punctulate and sparsely clothed with rufous pubescence. Length .60 inch; 15 mm.

The head, thorax and elytra are always very distinctly blue, the inflexed portion of the latter being often paler or even rufous. The abdomen above may be entirely piceous or the sides only rufo-piceous, frequently the rufous color invades nearly the entire surface of the apical segments. The body beneath, abdomen and legs are entirely rufous, the sides of the metasternum and the apical margins of the ventral segments slightly darker.

The only species for which this might be mistaken is *saphyrinus* in which the body beneath and abdomen are black, the segments 6—8 of the latter bright rufous.

Occurs in California, from Mariposa to Los Angeles.

S. erythropterus Linn., Faun. Suecc. 842; Erichs. Genera Staphylinidæ p. 377; *cæsareus* ‡ Lec., Proc. Am. Phil. Soc. 1878, p. 599.—Form moderately elongate, piceous, elytra and legs pale. Head orbicular, densely punctured, a narrow smooth line at middle, nuchal depression moderately deep, surface sparsely clothed with short black pubescence and with a small spot of golden pubescence above each eye in front, and also a line of similar pubescence in the neck. Eyes oval, oblique, subtruncate in front. Antennæ attaining the middle of the thorax, piceous, base and tip paler. Thorax as wide as the head, a little longer than wide, sides very feebly arcuate, subsinuate posteriorly, base broadly arcuate, surface densely punctured with feeble median line, surface sparsely pubescent. Scutellum velvety. Elytra very little wider than the thorax, a little wider conjointly than long, surface subopaque, sparsely pubescent with brownish and black hairs intermixed. Abdomen feebly shining, sparsely finely punctulate and with a velvety aspect, sparsely clothed with short black hairs, the second segment margined at apex with golden pubescence interrupted at middle; beneath very sparsely punctate, feebly shining, sparsely clothed with black hairs. Body beneath rather sparsely punctate. Coxæ piceous, legs pale, rufous. Length .54 inch; 13.5 mm.

This species is the one referred to *cæsareus*, (Proc. Amer. Philos. Soc. 1878, p. 597), but with the differences indicated. In that species however, the golden pubescence is on the apical margin of the first segment, and golden lateral spots on the next following as well as at the sides of the ventral segments except the first. The determination of the synonymy of this and the next has been made from specimens sent me by Mr. Fauvel.

One specimen Detroit, Michigan, collected by Hubbard and Schwarz.

S. cæsareus Cederh., Faun. Inqr. 335; Erichs. Genera Staphylinidæ, 378; *ornaticauda* Lec., New Species, 1863, p. 37.—Form moderately elongate. Head orbicular, moderately densely punctured, a feeble smooth line posteriorly, black, sparsely clothed with black pubescence, a spot near each eye and also the constriction of the neck with golden pubescence. Antennæ piceous, rufous at base and tip. Thorax black, a little narrower than the elytra, slightly longer than wide, sides behind the middle distinctly sinuate, disc moderately convex, surface densely punctured, a narrow smooth median line, sparsely pubescent. Scutellum with golden pubescence. Elytra as long as the thorax, pale brownish or rufous, rufo-pubescent, finely punctate. Abdomen densely finely punctulate and with black pubescence, posterior margin of the second and a spot on each side of the fourth, fifth and sixth with golden pubescence, beneath very sparsely punctate, the last four segments with golden pubescence along their anterior margin interrupted at middle. Sides of pectus with golden pubescence. Legs rufous, coxæ piceous or black. Length .60 inch; 15 mm.

One specimen Canada, collected by Mr. H. Ulke. Easily known from every other species at present occurring in our fauna, by the spots of golden pubescence at the sides of the ventral segments above and beneath.

S. vulpinus Nord., Symb. 53, 34; Erichs. Staph. p. 379; *immaculatus* Mann. Brach. 22, 7.—Elytra uniformly brownish or pale castaneous not maculate. Abdomen finely punctulate clothed with black pubescence, along the base of each segment with golden pubescence forming a broader spot at the sides, last ventral segment above and beneath rufous. Coxæ piceous, legs entirely pale reddish-yellow. Length .70 inch; 18 mm.

This species resembles *maculosus* in most of its characters so that merely the differences will be noted.

Occurs in the Middle States, region usually with *maculosus* but much less common.

S. maculosus Grav., Micr. 165, 13; Erichs. Staph. p. 375; *viduatus* Fab., Syst. El. ii, p. 591; *erythropennis* Mann, Brach. 22, 6.—Elongate, moderately robust, piceous, opaque, legs and tip of abdomen pale. Head large, subtriangular, densely punctured and with short brownish pubescence. Eyes rather broadly oval, truncate in front. Antennæ a little longer than the head, piceous, two basal joints paler. Thorax as wide as the head, as broad as long, sides very feebly arcuate or nearly straight, base broadly arcuate, surface

densely punctured and opaque with very feeble trace of smooth median line, sparsely clothed with short brownish pubescence. Scutellum velvety. Elytra a little wider than the thorax as broad as long, surface very densely punctured and sparsely pubescent, color brownish variegated with darker spots. Abdomen subopaque, moderately densely punctured, clothed with brownish intermixed with golden hair, each segment with a double row of velvety spots at middle, the last segment paler; beneath feebly shining, sparsely punctulate, each segment more densely and finely punctulate along the anterior margin and clothed with golden hair. Body beneath densely and finely punctulate. Coxæ piceous, femora piceous with edges paler, tibiæ and tarsi yellowish. Length .70—1.00 inch; 18—25 mm.

This species is too well known to need further comment. It occurs abundantly in the entire Atlantic region.

S. mysticus Erichs., Staph. p. 926; *Lecontei* Fauvel mss.—Form moderately elongate, piceous, subopaque, terminal abdominal segment paler. Head subtriangular, densely and rather coarsely punctured, subopaque. Eyes broadly oval, subtruncate in front. Antennæ piceous, basal joints margined with paler, attaining the middle of the thorax. Thorax not wider than the head, a little longer than wide, sides nearly straight, base broadly arcuate, punctured like the head, with feeble trace of smooth median line posteriorly, and with the head sparsely clothed with short brown pubescence. Scutellum velvety. Elytra a little wider than the thorax, and conjointly as wide as long, surface densely punctured and with brownish pubescence. Abdomen moderately densely punctulate, sparsely clothed with brownish pubescence, segments 2—6 with double row of velvety spots, last segment paler; beneath rather densely punctate and with longer pubescence than above. Body beneath densely finely punctulate. Legs piceous, tibiæ and tarsi somewhat paler, femora densely punctulate. Length .64—.80 inch; 16—20 mm.

The color of this species on the upper side is usually dark brown, but the elytra are always somewhat paler than the thorax, specimens are occasionally seen with the elytra reddish brown, resembling the usual color of those of *vulpinus*. In its general aspect the species resembles *maculosus*, but is always much smaller and more slender.

Widely distributed over the country from New York to Missouri and Georgia, not rare.

S. tarsalis Mann., Bull. Mosc. 1843, p. 229; *submetallicus* Lec., Proc. Acad. 1861, p. 342.—Elongate, piceous, subopaque, fifth and sixth ventral segments pale. Head subtriangular, densely and rather coarsely punctured, sparsely clothed with short brownish pubescence. Eyes obliquely oval, subtruncate in front. Antennæ piceous, a little longer than the head. Thorax not wider than the head, a little longer than wide, sides nearly straight, base broadly arcuate, surface densely punctured with an entire smooth median line, sparsely pubescent. Scutellum velvety. Elytra a little wider than the thorax, a little longer than wide conjointly, densely punctate scabrous and with dark brownish pubescence. Abdomen piceous above, moderately densely punctulate, with brownish pubescence, segments 1—6 with double row of elongate velvety spots; beneath piceous, last two segments usually paler, not densely puncta-

late, with brownish pubescence. Body beneath moderately densely punctulate. Legs piceous, femora densely punctate, tarsi usually paler. Length .60 inch; 15 mm.

The abdomen above in the majority of specimens is unicolorous, sometimes however the tip is slightly paler; beneath the fifth and sixth ventrals are often reddish brown. The species is very closely allied to *mysticus*, but the latter has no smooth median thoracic line while the present has. In well preserved specimens the pubescence on the elytra is slightly variegated, somewhat holosericeous.

Occurs from Sitkha to California and Arizona.

S. femoratus Fab., Syst. El. ii, p. 394; Erichs. Staph. 393; *varipes* Sachse, Stettin Zeitschr. 1852, p. 126.—Moderately elongate, piceous, head, thorax and elytra slightly æneous, last ventral segment and upper side of femora pale yellowish. Head rather small, subtriangular, coarsely densely punctured, sparsely pubescent, vertex flat. Eyes larger than usual, occupying two-thirds the length of the head, oval, truncate in front. Antennæ nearly reaching the middle of the thorax, piceous, basal joint margined with testaceous. Thorax a little wider than the head, a very little longer than wide, sides very feebly arcuate, base broadly so, surface punctured similarly to the head, with a smooth line posteriorly, sparsely clothed with brownish pubescence. Scutellum velvety. Elytra a very little wider than the thorax, slightly longer than wide, densely finely punctate-scabrous, subopaque, sparsely clothed with brownish pubescence. Abdomen finely sparsely punctate, and sparsely clothed with brownish hair, segments 2—6 with a feebly marked double series of velvety spots, last segment yellowish testaceous; beneath iridescent, moderately densely punctate, sparsely clothed with pale brownish pubescence. Body moderately densely punctate. Femora punctate, pale yellowish above, piceous beneath, tibiæ and tarsi piceous. Length .60 inch; 15 mm.

This species bears a certain resemblance to *exulans* but differs in sculpture, color of abdomen and legs. It differs abundantly from all our species in the size of the eyes as compared with the length of the head.

Occurs in the Southern States but appears to be rare, the only perfect specimen before me was given me by Mr. E. P. Austin, who received it from Georgia.

S. tomentosus Grav., Micr. p. 161; Erichs. Staph. p. 389.—Moderately elongate, black, opaque. Head subtriangular, very densely punctured and with short black pubescence. Eyes obliquely oval, subtruncate in front. Antennæ a little longer than the head, black. Thorax as wide as the head, a little longer than wide, sides nearly straight or very feebly arcuate, base broadly arcuate, surface very densely punctured with feeble trace of a smoother line posteriorly, clothed with short black pubescence. Scutellum velvety. Elytra a little wider than the thorax, as wide conjointly as long, very densely punctured and with short black pubescence. Abdomen above finely and moderately densely punctulate and with short black pubescence, segments 2—6 with a double row of velvety spots; beneath rather sparsely punctate, the first segment a little more densely, segments 2—6 a little more closely

punctured near the base. Body beneath moderately densely punctate. Legs black, femora closely punctate. Length .56—.64 inch; 14—16 mm.

The differences between this species and the immaculate varieties of *fossator* are mentioned under that species. It may also be noticed that the pubescence of the abdomen in this is always more distinct and coarser than in *fossator*, which has rather a velvety or sooty appearance.

Occasionally specimens occur in which the velvety spots of the abdomen are feeble or removed by abrasion, these are still more confusing but may be referred here by the elytral sculpture which is a genuine punctuation, while in *fossator* it is punctate-scabrous. Rarely individuals are seen with the base of the antennæ pale or with the tip of the abdomen slightly paler, specimens of this character have been sent me by M. Fauvel, under the names *basicornis* and *analis*, they are however genuine *tomentosus*.

Occurs from the Middle States to Louisiana.

S. fossator Grav., Micr. p. 164; Erichs. Staph. p. 386; *immaculatus* Fauv. mss. var.—Form moderately robust, black, subopaque, elytra usually with a large spot of golden pubescence at outer apical angle. Head subtriangular, densely coarsely punctured, front rather flat, surface with short black pubescence. Eyes obliquely oval, truncate in front. Antennæ piceous or black, attaining nearly the middle of the thorax. Thorax as wide as the head, as wide as long, very little narrowed in front, surface very densely punctured, a very narrow smooth median line posteriorly, sparsely clothed with short black pubescence. Scutellum velvety. Elytra a little wider than the thorax, as broad conjointly as long, surface densely punctate-scabrous with a slight violaceous tinge, clothed with short black pubescence, the outer apical angles frequently with large spot of golden red pubescence. Abdomen above black, subopaque, moderately densely punctate, sparsely clothed with short black pubescence; beneath distinctly iridescent not densely punctate, sparsely pubescent. Body beneath sparsely punctulate at middle, more densely at the sides. Legs black, femora moderately densely punctulate. Length .50—.72 inch; 12.5—18 mm.

Two varieties of this species are well known, the one with a large spot of orange colored pubescence at the outer apical angle of each elytron, the other entirely black. The first is easily known from any of our other species, the second may be mistaken for *tomentosus*. The latter species has a double row of velvety spots on the abdomen, and the elytra are of a pure black color, while *fossator* has no velvety spots and the elytra always show a slight violaceous tinge. In well preserved specimens the sixth abdominal segment above shows at base three small golden spots.

Occurs from Michigan to Georgia, living in fungi.

S. comes Lec., New Species, 1863, p. 36.—Form moderately elongate, piceous with feeble surface lustre, legs pale, abdomen paler at tip and with

pale spots at the side of each segment. Head subtriangular, coarsely and moderately densely punctured with sparse pubescence, surface feebly shining. Eyes slightly oblique, rather broadly oval. Antennæ a little longer than the head, piceous, basal joint pale. Thorax not wider than the head, a little longer than wide, sides nearly straight, base broadly arcuate, coarsely punctured with rather broad smooth median line, surface very sparsely pubescent. Scutellum velvety. Elytra a little wider than the thorax, conjointly as wide as long, densely finely punctured, subopaque, pubescence fine pale brownish, holosericeous. Abdomen moderately densely finely punctured, sparsely clothed with golden pubescence, segments 2—6 with indistinct double row of velvety spots; beneath sparsely punctate, the first two more densely and finely, sparsely clothed with yellowish pubescence, each segment with a pale yellow spot on each side, the terminal also pale at tip. Body beneath densely punctured. Coxæ piceous, legs pale, the femora punctured and with a longitudinal piceous stripe. Length .50 inch; 12.5 mm.

The color of this species above varies considerably. One specimen before me has the head and thorax piceous with slight æneous lustre as in *femoratus*, a second the color is pale brownish variegated with darker spots. The elytra in both cases are pale brown slightly clouded as in *maculosus*. The lateral pale spots of the abdomen are probably not constant, as in the paler specimen above noted the spots are large while in the other they are scarcely evident.

Occurs in Georgia and Florida, and is not common in collections.

S. cinnamopterus Grav., Micr. 164, 11; Erichs. Staph. p. 390; *zonatus* Grav. Micr. 162, 7; *badipes* Mann. Brach. 23, 9.—Rather slender, elongate, piceous, elytra, tip of abdomen, tibiæ and tarsi paler. Head densely coarsely punctured, the punctures however not confluent, surface rather shining and with feeble or no pubescence. Eyes rather small, oblique, subtruncate in front. Antennæ a little longer than the head, piceous, gradually paler toward the tip. Thorax as wide as the head, sides straight or feebly arcuate, base broadly arcuate, coarsely moderately densely punctured with a rather wide smooth median line, surface very sparsely pubescent, moderately shining. Scutellum velvety. Elytra a little wider than the thorax, as wide conjointly as long, densely punctulate, sparsely pubescent. Abdomen rather sparsely punctate, slightly iridescent, sparsely clothed with pale brownish pubescence, beneath iridescent, more coarsely punctate and with brownish pubescence. Body beneath moderately densely punctate. Femora piceous, punctate, tibiæ and tarsi pale rufous. Length .52—.60 inch; 13—13.5 mm.

This species is very variable in color and general aspect. The fully mature specimens are as described above. Specimens frequently occur in which the head, thorax and elytra are uniformly pale brown, while the abdominal segments are piceous with the apical and basal margins broadly paler. In those specimens in which the abdominal pubescence is well preserved, the pubescence is less distinct along the middle of the upper surface so that the appearance of a velvety spot is imitated. The pubescence appears to be very feebly persistent so that in most specimens the head and thorax are quite glabrous.

Occurs everywhere in our country from Maine to California, and common.

S. violaceus Grav., Micr. p. 132; Erichs. Staph. p. 392; *cupripennis* Mels. Proc. Acad. ii, p. 35.—Form rather slender, body beneath black, shining, head, thorax and elytra violaceous or cupreous. Head subtriangular, coarsely and sparsely punctured and shining. Eyes obliquely oval. Antennæ piceous, a little longer than the head. Thorax as wide as the head, as wide as long, sides feebly base more broadly arcuate, surface shining, coarsely and sparsely punctured with distinct smooth median line. Scutellum velvety. Elytra a little wider than the thorax, as wide conjointly as long, densely punctulate and subopaque, sparsely pubescent. Abdomen above black, shining, iridescent, segments 2—3 densely finely punctulate and with greyish sericeous pubescence, segments 4—7 coarsely sparsely punctate and with very little pubescence. Body beneath sparsely punctate, sides of metasternum more densely. Abdomen beneath very sparsely and moderately coarsely punctate and with sparse pubescence, segments 4—6 more finely and densely punctured along the anterior border and with the grey pubescence more evident. Legs piceous black, iridescent, femora sparsely punctate. Length .56—.60 inch; 14—15 mm.

The color above varies from violaceous to cupreous. In some specimens the thorax appears to have a slight sinuation immediately behind the anterior angles. This is the only species in our fauna with the basal segments of the abdomen differently clothed from the apical.

Occurs from Canada to North Carolina.

S. rutilicauda n. sp.—Form moderately elongate, piceous, head, thorax and elytra blue, last two segments of abdomen red. Head subtriangular, coarsely, not densely punctured, a feeble median smooth line. Eyes normal, obliquely oval, subtruncate in front. Antennæ piceous, a little longer than the head. Thorax as wide as the head, as broad as long, sides very feebly, base broadly arcuate, punctured similarly to the head. Scutellum densely punctulate with velvety pubescence. Elytra a little wider than the thorax, conjointly as wide as long, densely punctulate, very sparsely pubescent. Abdomen sparsely finely punctulate with dark pubescence, last two segments red with reddish pubescence. Body beneath sparsely punctulate, abdomen coarsely sparsely punctured and with short brownish hairs, reddish on the last two red segments. Legs piceous, femora sparsely punctured. Length .52—.60 inch; 13—15 mm.

This species bears a certain superficial resemblance to *saphyrinus* in the distribution of color but is similar in form to *fossator* or *tomentosus*. The head and thorax are entirely void of the usual pubescence, as is the case in all those species in which the punctures are distantly placed.

Two ♀ specimens from Oregon.

S. viridanus n. sp. (Fauvel mss.)—Form moderately elongate, piceous, head, thorax and elytra variable in color, either æneous, bluish, greenish or violaceous, epipleural margin usually pale. Head subtriangular, coarsely and rather densely punctured, moderately shining, very inconspicuously pubes-

cent. Eyes obliquely oval, normal in size. Antennæ piceous, attaining the middle of the thorax. Thorax broader than the head, as broad as long, slightly narrowed in front, sides feebly, base more broadly arcuate, surface densely and rather coarsely punctured, a smooth median line posteriorly, very inconspicuously pubescent. Scutellum velvety. Elytra not wider than the thorax, as wide conjointly as long, surface subopaque, densely punctate-scabrous clothed with brownish pubescence. Abdomen above sparsely punctate, moderately shining, slightly iridescent, sparsely clothed with brownish pubescence, with sparse golden pubescence forming an undulating band along the base of each segment, broader at the sides, segments 2—6 with a double series of elongate velvety spots; beneath piceous, shining, iridescent, sparsely punctate with brownish pubescence, each segment more finely and densely punctate along the basal margin and with sparse golden pubescence. Body beneath rather sparsely punctate. Legs variable in color, often entirely yellow, usually the femora are piceous, the upper and lower edges yellow, the tibiæ and tarsi yellow. Length .60—.64 inch; 15—16 mm.

This is the species heretofore labelled in collections *femoratus*, but M. Fauvel informs me that the latter name should belong to the species to which it is applied in the present paper.

Occurs in the New England States, Canada and New York and Michigan.

S. exulans Erichs., Staph. p. 374.—Form moderately elongate, piceous, head, thorax and elytra distinctly brassy. Head comparatively small, subtriangular, coarsely and moderately densely punctured with a smooth vertical space of variable size. Eyes obliquely oval, subtruncate in front. Antennæ piceous, attaining the middle of the thorax. Thorax a little wider than the head, slightly narrowed in front, as wide as long, sides feebly base more broadly arcuate, surface moderately shining, coarsely and moderately densely punctured, a smooth median line wider posteriorly, on each side small smooth spaces of variable size. Scutellum velvety. Elytra a little wider than the thorax, conjointly as wide as long, subopaque, surface densely punctured and scabrous and sparsely clothed with pale brownish pubescence. Abdomen above feebly shining sparsely punctulate, sparsely clothed with brownish pubescence with a little golden pubescence at the sides and the apex of each segment, 2—5 with a double series of velvety spots sometimes visible on the sixth also; abdomen beneath piceous, iridescent, sparsely punctate, sparsely clothed with brownish pubescence intermixed with yellowish near the base and sides of each segment. Body beneath rather finely but not densely punctate. Legs piceous, femora finely punctulate. Length .44—.56 inch; 11—14 mm.

This species could hardly be confounded with any other from its color and sculpture, it bears a certain amount of resemblance however to *comes* in which the legs are always pale.

Occurs from Canada to Georgia, but rare.

S. prælongus Mann., Brach. p. 24; Erichs. Staph. p. 391; *cicatricosus* Lec., New Species, 1863, p. 37.—Form moderately elongate, piceous black, head and thorax slightly æneous. Head subtriangular, comparatively small, coarsely very sparsely punctured and with a large smooth vertical space, slightly pubescent behind the eyes where the punctuation is dense. Eyes obliquely oval. Antennæ piceous attaining the middle of the thorax. Thorax

very little wider than the head, longer than wide, sides nearly straight, subparallel or slightly broader behind, base broadly arcuate, surface very coarsely punctured, rather densely at the sides, very distantly on the disc which has a broad median smooth space and one less defined on each side; surface glabrous slightly pubescent near the margin. Scutellum velvety. Elytra wider than the thorax, conjointly as wide as long, surface densely punctured and opaque, sparsely clothed with brownish pubescence. Abdomen above sparsely punctulate, last three segments with large punctures irregularly placed, sparsely clothed with brownish pubescence, segments 2—6 with a double row of velvety spots; beneath sparsely punctate and with brownish pubescence. Body beneath sparsely punctate more densely at the sides with brownish pubescence. Legs piceous, femora sparsely punctate. Length .50—.64 inch; 12.5—16 mm.

An easily known species by the nearly parallel thorax as well as by the very coarse and irregular punctuation.

Occurs from Massachusetts to Pennsylvania, and is more abundant near the sea-shore.

LEISTOTROPHUS Perty.

The principal difference between this genus and Staphylinus is found in the form of the maxillary palpi, the last joint being somewhat shorter and more slender than the preceding. The lateral lines of the prothorax are similarly confluent.

Two species occur in our fauna which represent distinct divisions of the genus, differing as follows:

Eyes large. Antennæ with joints 1—5 slender and hairy, joints 6—11 opaque, densely finely punctulate, subserrate, the terminal joint very obliquely emarginate, subacuminate.

Head and thorax concolorous; tip of abdomen with golden pubescence. **cingulatus.**

Eyes rather small. Antennæ with joints 1—3 elongate, four oval, these hairy and moderately shining, 5—11 opaque, transverse, densely finely punctulate, the terminal emarginate and transverse, not acuminate.

Head reddish yellow; abdomen with segments 5—6 with grey silken pubescence ..... **capitatus.**

L. cingulatus Grav., Micr. p. 166; Erichs. Staph. p. 360; *chrysurus* Kby. Fauna Bor. Am. p. 94; *speciosus* Mann. Brach. p. 21.—In addition to the above characters it will be observed that the tarsi are more slender than in the next species. This is especially the case in the last joint of the anterior tarsi. The hind angles of the head are also more abruptly formed. This species is so common as not to require any further description. Length .50—.60 inch; 13—15 mm.

Occurs everywhere east of the Rocky Mts. and in Vancouver.

L. capitatus Bland, Proc. Ent. Soc. 1864, p. 65.—Form moderately elongate, black, head pale rufous. Head suborbicular, rather suddenly constricted posteriorly, hind angles broadly rounded, surface finely and densely punctured, sparsely clothed with pale pubescence. Eyes ovate, slightly oblique, subtruncate in front. Antennæ rufous, usually darker externally, a little longer than the head. Thorax a little narrower than the head, longer than wide, narrowed

posteriorly, sides feebly arcuate, behind the middle very distinctly sinuate, surface densely punctured, more coarsely than the head, median smooth line very feeble at middle, slightly more evident in front and very distinctly marked posteriorly, color piceous often with paler spots especially along the basal margin, surface sparsely pubescent, varying in color with the color of the surface from which it arises. Scutellum with cordiform velvety spot partially divided, sides punctured. Elytra a little wider than the head, conjointly as wide as long, surface densely punctured with small widely scattered smooth spaces, sparsely clothed with dark pubescence, irregularly marmorate with velvety, fringed at the tip with rufous hairs. Abdomen above black, finely punctulate, segments 2—4 with a velvety space at middle usually in form of letter H, the remainder of the surface of these segments sparsely clothed with dark pubescence intermixed with grey, segments 5—6 entirely clothed with greyish sericeous pubescence, last segment black; beneath moderately densely, finely punctured, and moderately densely clothed with grey sericeous pubescence over the entire surface. Body beneath densely pubescent and with grey pubescence. Legs black, pubescence brownish. Length .50—.60 inch; 12.5—15 mm.

The characters above given separate this species abundantly from any other known to me. The males have a larger head than the females and the sixth ventral segment is triangularly emarginate.

This species occurs in Ontario (Pettit), and New York (Schaupp), living in fungi.

HADROTES Lec.

Last two joints of maxillary palpi equal. Lateral lines of thorax distinct and separate. Body apterous. Anterior tibiæ feebly triangular, the apical angle slightly prolonged, posterior face with short stout spinules. Middle and posterior tibiæ gradually thicker to the tip and armed with numerous short, stout spinules.

H. crassus Mann., (*Staphyl.*) Bull. Mosc. 1846, ii, p. 509; *extensus* Lec., Proc. Acad. 1861, p. 342.—Piceous black, shining. Head and thorax smooth and shining, the former with punctures at the sides of the neck. Thorax as wide as long, slightly narrowed posteriorly, sides nearly straight, base broadly arcuate. Scutellum punctured. Elytra as wide as the thorax, conjointly as wide as long, surface glabrous wrinkled. Abdomen very coarsely but sparsely punctured, a smooth space at middle of each segment, surface sparsely clothed with brownish pubescence; beneath rather more densely punctured than above, with brownish pubescence, last four segments with a few erect hairs. Legs piceous, tibiæ and tarsi somewhat paler. Length .50—.68 inch; 13—17 mm.

Occurs from Alaska to Middle California.

CREOPHILUS Mann.

The fourth joint of the maxillary palpi is a little shorter than the third. The lateral lines of the thorax do not unite, the outer becoming entirely obsolete one-third from the anterior angle. The antennæ are short the outer joints gradually broader, the terminal longer but narrower than the preceding and distinctly emarginate at tip.

C. villosus Grav., Micr. p. 160; Erich. Staph. p. 349; Mann. Bull. Mosc. 1843, ii, p. 228; *bicinctus* Mann. loc. cit. p. 229; *fasciatus* Lap. Etudes, p. 111.—It seems to me necessary to unite the species above cited under one name. The only differences which exist are found in the vestiture of the under side of the body, some of the specimens having the abdominal segments 2—3 clothed with grey pubescence while others have 2—4 so clothed. This proves however to have no value as intermediate specimens occur. These two forms have moreover no geographical limitations, both occurring associated everywhere in our fauna. Erichson in his description says that the first three segments are cinereo-tomentose, this is not the case in any specimens I have seen, the second, third and the fourth partly are so clothed. The metasternum at sides may have either black or cinereous pubescence. Length varies from .48—.90 inch; 12—23 mm.

Occurs from Alaska southward over our entire territory, and extends probably into Mexico.

THINOPINUS Lec.

The fourth joint of the maxillary palpi is very little if any shorter than the preceding. The elytra are short imbricated at the suture, the wings absent. The anterior tibiæ are triangular, the outer apical angle prolonged forward. The middle and posterior tibiæ are gradually thicker toward the tip, the outer side muricate but without the spines as in the allied genera; the spurs are long and slender. The antennæ are short, not passing the hind angles of the head. The lateral lines of the thorax remain distinct but under the anterior angle approximate very closely.

One species occurs on the Pacific sea-shore from Alaska to San Diego.

T. pictus Lec., Ann. Lyc. v, p. 216; Pacific R. R. Rep. 1857, App. 1, p. 35, pl. 1, fig. 12; *variegatus* Motsch. Etudes, 1852, p. 78; Mann. Bull. Mosc. 1853, iii, p. 188.—Color pale yellowish testaceous, variegated above with piceous spots. Head broadly triangular, hind angles obtusely prominent, surface glabrous, shining, neck with two piceous spots. Thorax broader than long, narrowed at base, sides in front arcuate, posteriorly sinuate, margin at sides very narrowly, at base more broadly reflexed, surface smooth shining, glabrous with a piceous oval ring on each side, varying from this to immaculate. Elytra short, each as wide as long, slightly opaque, obsoletely punctate, sparsely pubescent, with a piceous line forming an oval ring varying to immaculate. Abdomen above punctulate, more densely at the sides, clothed with very fine and short pubescence, with a double row of black spots of variable size, sometimes absent. Body beneath testaceous, abdomen moderately densely punctured, sparsely pubescent. Length .56—.74 inch; 14—19 mm.

The maculation of the surface is very variable, in one specimen before me piceous is the prevailing color above but I have not seen any entirely testaceous. The males have the abdomen more oval than the female and the sixth ventral rather deeply emarginate.

Descriptions of new North American HYMENOPTERA in the collection of the American Entomological Society.

BY E. T. CRESSON.

Family APIDÆ.

(Continued from page 136.)

Calliopsis cinctus.—♀.—Black; head, thorax and legs clothed with a long griseous pubescence, sparse on vertex, clypeus and disk of thorax; flagellum dull testaceous beneath; wings slightly dusky, second submarginal cell rather shorter than the first, narrowed nearly one-half towards marginal; pubescence on tarsi brownish; abdomen oblong-ovate, depressed, smooth and shining, with a few scattered pale hairs at sides, segments 1—4 each with a pale yellow band, more or less dilated laterally and subemarginate on each side posteriorly, the fifth segment with two pale yellowish spots; anal fimbria fuscous; venter dull piceous, immaculate. Length .40 inch.

♂.—Narrower and more convex, the pubescence on head and thorax whitish; clypeus except black spots at base, labrum, lower sides of face and mandibles except tips, white; tegulæ piceous; anterior tibiæ and tarsi in front, and spot at extreme base and apex of intermediate tibiæ, yellowish; abdomen convex above, segments 1—6 each with a whitish band, narrower than in ♀ and not dilated on the sides, that on sixth segment abbreviated laterally. Length .35 inch.

Hab.—Nevada, (Morrison). Two specimens. Allied to *zebratus* Cress.

Calliopsis zonalis.—♂.—Black, shining, clothed with an ochraceous pubescence; sides of face, three spots beneath antennæ, clypeus except two black points near base, labrum and mandibles except tips, yellow; antennæ dull testaceous beneath; mesothorax finely punctured, nude on disk; tubercles yellow; tegulæ brown, narrowly margined on inner side with yellow; wings faintly dusky at tips; femora at tips, anterior tibiæ in front, base and apex of four posterior tibiæ, and most of tarsi, yellow; abdomen subdepressed, shining, a narrow yellow band on segments 1—5, more or less narrowed medially and slightly sinuate on the sides, sixth segment with a lateral yellow spot and a short subobsolete yellow line on middle. Length .30 inch.

Hab.—California, (H. Edwards). One specimen. Allied to *zebratus* and *cinctus*.

Calliopsis Edwardsii Cress.—♀ var. **lateralis** Cress.—A large series of specimens just received, prove this latter to be merely a variety.

Calliopsis obscurellus.—♀.—Black, shining, thickly clothed with a rather long, fine, whitish pubescence, that on occiput and thorax above more or less fuscous; a white spot on each lower corner of the face; mandibles castaneous at tips; flagellum fulvous beneath; tegulæ piceous; wings hyaline, faintly dusky at tips, marginal cell long, broad, obliquely pointed at tip, second

submarginal shorter than the first, narrowed nearly one-half towards marginal, receiving the recurrent nervures about one-fifth from the base and tip respectively; legs with griseous pubescence; abdomen ovate, depressed, shining, thinly pubescent, segments 1—4 each with a narrow dull whitish band before apex, narrowed medially and obliquely emarginate on each side posteriorly; apex fimbriated with pale pubescence. Length .35—.40 inch.

♂.—More convex than ♀; sides of face, clypeus, labrum and base of mandibles white; the four anterior tibiæ and tarsi more or less yellowish in front; the whitish fasciæ on abdomen narrower than in ♀, and sometimes interrupted on the sides. Length .30—.35 inch.

Hab.—California, (H. Edwards). Six specimens.

Perdita zonalis.—♀.—Shining; head and thorax dark metallic green, thinly clothed with a white pubescence; sides of face, spot beneath antennæ, clypeus, except sometimes a minute dot on each side, labrum, base of mandibles, scape, flagellum beneath, collar, two spots on prothorax, tubercles and tegulæ, lemon-yellow; wings hyaline, beautifully iridescent, stigma subhyaline, marginal cell much shorter than first submarginal, broadly truncate at tip, second submarginal less than half the length of first, narrowed one-half to marginal; legs lemon-yellow, anterior femora behind, a line on four anterior tibiæ behind, and the posterior tibiæ and tarsi entirely, black; abdomen flat, polished, lemon-yellow, a dot on each side of first segment and a broad band on apex of segments, 1—4, black; apical segment pale honey-yellow, clothed with long sparse pale pubescence; venter immaculate. Length .25 inch.

Hab.—Nevada, (Morrison). Ten specimens. Allied to *zebrata* Cress.

Nomada vinnula.—♀.—Black, opaque, head and thorax very densely and confluently punctured; sides of face broadly, spot beneath antennæ, posterior orbits, clypeus except two black spots at base, labrum, mandibles except tips, scape beneath, line on prothorax above, tubercles, tegulæ, scutellum, large square mark on sides of pleura and two spots on metathorax behind, all lemon-yellow; flagellum fulvous, more or less spotted behind with black, second joint much longer than third; wings rather broadly dusky at tips and in marginal cell; legs lemon-yellow, coxæ, trochanters and femora behind, also stripe on tibiæ behind, black; abdomen convex, subopaque, very finely and densely punctured, black, segments 1—5 each with a broad lemon-yellow band, that on second segment dilated laterally; venter yellow, with narrow black bands. Length .50 inch.

♂.—Much like the ♀, with the head and thorax thickly clothed with pale pubescence, ornamented the same except that the posterior orbits are yellow only beneath the eyes, the yellow mark on sides of pleura much smaller and that on scutellum often divided into two spots. Length .40—.45 inch.

Hab.—Nevada, (Morrison). Ten specimens.

Nomada jocularis.—♀.—Black, opaque; head and thorax densely punctured, thinly clothed with a pale pubescence; sides of face, clypeus, spot above, posterior orbits, labrum, mandibles except tips, scape in front, line on prothorax, line over tegulæ or spot in front, tegulæ except a central dot, tubercles, large mark on sides of pleura deeply notched behind, scutellum,

line behind, and two spots on metathorax, all yellow; upper anterior orbits and flagellum ferruginous, second and third joints of the latter about equal in length; scutellum subbilobate; wings dusky, stained with yellowish, apical margins darker; legs yellow, coxæ and trochanters behind, base of femora and behind more or less and spot or line on tibiæ behind, black, tarsi pale ferruginous; abdomen very minutely punctured, shining, yellow, the three basal segments above black, each with a broad yellow submedian band, narrowed in the middle, that on the first segment sometimes varied with ferruginous on the disk; apical margin of terminal segments rufo-testaceous. Length .43 inch.

Hab.—Nevada, (Morrison). Two specimens.

Nomada verecunda.—♀.—Small, black, rather closely punctured; sides of face broadly, posterior orbits, clypeus except two spots at base, labrum, mandibles except tips, scape in front, line on prothorax above, tegulæ, tubercles, mark beneath tubercles confluent or nearly so with a smaller one behind, scutellum, sometimes a line on postscutellum, and spot in front of each intermediate coxa, lemon-yellow; flagellum black above, testaceous beneath, second joint longer than third; scutellum flattened; wings dusky at tips; legs black, tips of coxæ and femora, four anterior tibiæ except spot behind, base and apex of posterior tibiæ and all the tarsi, lemon-yellow; abdomen shining, segments 2—5 each with a broad continuous lemon-yellow band, those on two and three dilated laterally, second segment with a narrow band of same color slightly emarginate on each side posteriorly, apex with silvery pile; venter with three broad yellow bands. Length .30—.35 inch.

♂.—Much like the ♀; face with a silvery pile, and not so broadly yellow at the sides, and the cheeks immaculate except beneath the eyes; flagellum shorter, with close-set joints; the yellow spots on pleura reduced or entirely wanting; the yellow band on first segment of abdomen broader and not emarginate posteriorly. Length .30—.35 inch.

Hab.—Nevada, (Morrison). Numerous specimens. This pretty little species may be easily recognized by the black annulus on posterior tibiæ and immaculate metathorax.

Nomada suda.—♀.—Black; thorax coarsely and confluently punctured; sides of face, orbits interrupted at summit of eyes, clypeus, except short black line and dot on each side, spot above, labrum, mandibles except tips, scape beneath, line on prothorax above, tegulæ, dot in front, tubercles, large mark on sides of pleura, two spots beneath, scutellum and two broad wavy stripes on metathorax, all yellow; face shining; flagellum ferruginous, second joint a little shorter than the third; wings faintly dusky, dark on apical margin; legs yellow, coxæ beneath and the femora above and beneath more or less, black, abdomen yellow, base of first and narrow apical margin of segments 1—4 black or brown; venter yellow, sometimes black on posterior middle of the segments. Length .30 inch.

Hab.—Nevada, (Morrison). Two specimens.

Phileremus? producta.—♀.—Black, coarsely and confluently punctured, clothed with a short coarse whitish pubescence, dense on face, cheeks and sides of thorax; antennæ short, stout, black; scutellum large, flattened, with an erect subacute spine at tip; tegulæ rufo-piceous; wings stained with

submarginal shorter than the first, narrowed nearly one-half towards marginal, receiving the recurrent nervures about one-fifth from the base and tip respectively; legs with griseous pubescence; abdomen ovate, depressed, shining, thinly pubescent, segments 1—4 each with a narrow dull whitish band before apex, narrowed medially and obliquely emarginate on each side posteriorly; apex fimbriated with pale pubescence. Length .35—.40 inch.

♂.—More convex than ♀; sides of face, clypeus, labrum and base of mandibles white; the four anterior tibiæ and tarsi more or less yellowish in front; the whitish fasciæ on abdomen narrower than in ♀, and sometimes interrupted on the sides. Length .30—.35 inch.

Hab.—California, (H. Edwards). Six specimens.

Perdita zonalis.—♀.—Shining; head and thorax dark metallic green, thinly clothed with a white pubescence; sides of face, spot beneath antennæ, clypeus, except sometimes a minute dot on each side, labrum, base of mandibles, scape, flagellum beneath, collar, two spots on prothorax, tubercles and tegulæ, lemon-yellow; wings hyaline, beautifully iridescent, stigma subhyaline, marginal cell much shorter than first submarginal, broadly truncate at tip, second submarginal less than half the length of first, narrowed one-half to marginal; legs lemon-yellow, anterior femora behind, a line on four anterior tibiæ behind, and the posterior tibiæ and tarsi entirely, black; abdomen flat, polished, lemon-yellow, a dot on each side of first segment and a broad band on apex of segments, 1—4, black; apical segment pale honey-yellow, clothed with long sparse pale pubescence; venter immaculate. Length .25 inch.

Hab.—Nevada, (Morrison). Ten specimens. Allied to *zebrata* Cress.

Nomada vinnula.—♀.—Black, opaque, head and thorax very densely and confluently punctured; sides of face broadly, spot beneath antennæ, posterior orbits, clypeus except two black spots at base, labrum, mandibles except tips, scape beneath, line on prothorax above, tubercles, tegulæ, scutellum, large square mark on sides of pleura and two spots on metathorax behind, all lemon-yellow; flagellum fulvous, more or less spotted behind with black, second joint much longer than third; wings rather broadly dusky at tips and in marginal cell; legs lemon-yellow, coxæ, trochanters and femora behind, also stripe on tibiæ behind, black; abdomen convex, subopaque, very finely and densely punctured, black, segments 1—5 each with a broad lemon-yellow band, that on second segment dilated laterally; venter yellow, with narrow black bands. Length .50 inch.

♂.—Much like the ♀, with the head and thorax thickly clothed with pale pubescence, ornamented the same except that the posterior orbits are yellow only beneath the eyes, the yellow mark on sides of pleura much smaller and that on scutellum often divided into two spots. Length .40—.45 inch.

Hab.—Nevada, (Morrison). Ten specimens.

Nomada jocularis.—♀.—Black, opaque; head and thorax densely punctured, thinly clothed with a pale pubescence; sides of face, clypeus, spot above, posterior orbits, labrum, mandibles except tips, scape in front, line on prothorax, line over tegulæ or spot in front, tegulæ except a central dot, tubercles, large mark on sides of pleura deeply notched behind, scutellum,

line behind, and two spots on metathorax, all yellow; upper anterior orbits and flagellum ferruginous, second and third joints of the latter about equal in length; scutellum subbilobate; wings dusky, stained with yellowish, apical margins darker; legs yellow, coxæ and trochanters behind, base of femora and behind more or less and spot or line on tibiæ behind, black, tarsi pale ferruginous; abdomen very minutely punctured, shining, yellow, the three basal segments above black, each with a broad yellow submedian band, narrowed in the middle, that on the first segment sometimes varied with ferruginous on the disk; apical margin of terminal segments rufo-testaceous. Length .43 inch.

Hab.—Nevada, (Morrison). Two specimens.

Nomada verecunda.—♀.—Small, black, rather closely punctured; sides of face broadly, posterior orbits, clypeus except two spots at base, labrum, mandibles except tips, scape in front, line on prothorax above, tegulæ, tubercles, mark beneath tubercles confluent or nearly so with a smaller one behind, scutellum, sometimes a line on postscutellum, and spot in front of each intermediate coxa, lemon-yellow; flagellum black above, testaceous beneath, second joint longer than third; scutellum flattened; wings dusky at tips; legs black, tips of coxæ and femora, four anterior tibiæ except spot behind, base and apex of posterior tibiæ and all the tarsi, lemon-yellow; abdomen shining, segments 2—5 each with a broad continuous lemon-yellow band, those on two and three dilated laterally, second segment with a narrow band of same color slightly emarginate on each side posteriorly, apex with silvery pile; venter with three broad yellow bands. Length .30—.35 inch.

♂.—Much like the ♀; face with a silvery pile, and not so broadly yellow at the sides, and the cheeks immaculate except beneath the eyes; flagellum shorter, with close-set joints; the yellow spots on pleura reduced or entirely wanting; the yellow band on first segment of abdomen broader and not emarginate posteriorly. Length .30—.35 inch.

Hab.—Nevada, (Morrison). Numerous specimens. This pretty little species may be easily recognized by the black annulus on posterior tibiæ and immaculate metathorax.

Nomada suda.—♀.—Black; thorax coarsely and confluently punctured; sides of face, orbits interrupted at summit of eyes, clypeus, except short black line and dot on each side, spot above, labrum, mandibles except tips, scape beneath, line on prothorax above, tegulæ, dot in front, tubercles, large mark on sides of pleura, two spots beneath, scutellum and two broad wavy stripes on metathorax, all yellow; face shining; flagellum ferruginous, second joint a little shorter than the third; wings faintly dusky, dark on apical margin; legs yellow, coxæ beneath and the femora above and beneath more or less, black, abdomen yellow, base of first and narrow apical margin of segments 1—4 black or brown; venter yellow, sometimes black on posterior middle of the segments. Length .30 inch.

Hab.—Nevada, (Morrison). Two specimens.

Phileremus? productus.—♀.—Black, coarsely and confluently punctured, clothed with a short coarse whitish pubescence, dense on face, cheeks and sides of thorax; antennæ short, stout, black; scutellum large, flattened, with an erect subacute spine at tip; tegulæ rufo-piceous; wings stained with

fuscous, marginal cell long, sublanceolate, obtusely pointed at tip, second submarginal nearly as long as the first, truncate at tip and narrowed one-half towards marginal, receiving the first recurrent at the base and the second one-third from the tip; legs slender, simple, tarsi fuscous; abdomen elongate convex, rapidly narrowed to tip, segments 1—5 each with an apical fringe of short dense white pubescence, terminal segment flat, produced, broadly rounded at tip; venter subconvex, ornamented as above. Length .35 inch.

Hab.—Nevada, (Morrison). One specimen.

Melecta pacifica Cress.—♀ variety **fulvida.**—Black, the pubescence on scape above and a tuft on vertex, yellow; the occiput, thorax above and band on first segment of abdomen above, clothed with a dense rich fulvo-ferruginous pubescence; abdomen with a slight bluish iridescence in certain lights. Length .50 inch.

Hab.—Nevada, (Morrison). Six specimens. A very handsome insect.

Melecta separata.—♀.—Deep black, clothed with black pubescence; tuft about base of antennæ, occiput, thorax above, except black band between the wings, and a band on first segment of abdomen above, clothed with a pale ochraceous pubescence; wings slightly dusky; abdomen with a slight bluish iridescence. Length .50 inch.

Hab.—Nevada, (Morrison). One specimen. Resembles *pacifica*, but is rather more robust, and readily distinguished by the black band between the wings.

Melecta maculata.—♀.—Small, black; head above antennæ, cheeks, spots on thorax above, large patch on sides of pleura, apical middle of scutellum and sides of metathorax, clothed with a short dense cinereous pubescence, that on head above and mesothorax anteriorly often varied with spots of black or brown pubescence; flagellum robust; disk of mesothorax and of the scutellum, which is bilobate, nude and confluently punctured; thorax broad, gibbous; tegulæ dull fulvous; wings with the apical margin broadly dusky, streaked with hyaline, the marginal cell and a cuneiform spot across the second and third submarginal cells fuliginous; legs black, with long sparse hairs, the tibiæ more or less clothed with a dense cinereous pubescence; abdomen broad ovate, depressed, opaque; a broad band of short dense appressed cinereous pubescence on segments 1—4, that on the first straight on anterior margin and sinuate posteriorly, those on three following segments more or less narrowed and sinuate on anterior margin and each enclosing on the posterior margin four black spots; fifth segment with two large cinereous spots; venter piceous, shining. Length .35 inch.

♂.—Like the ♀ in ornamentation; the flagellum very much thickened and fusiform. Length .30 inch.

Hab.—Nevada, (Morrison). Four specimens. The arrangement of the patches of pubescence on this curious little species is extremely difficult to describe. The form of the flagellum of the ♂ is unlike that of any other species of Apidæ known to me, being dilated and fusiform.

Melecta? mucida.—♂.—Small, black; head and thorax densely clothed with a rather long cinereous pubescence, that on sides of face, occiput and anterior margin of mesothorax, varied with fuscous; scape pubescent, flagellum nude, robust, filiform; disk of thorax and scutellum almost nude, the latter strongly bilobate, and on each side a tuft of short black pubescence; tegulæ testaceous; wings hyaline, broadly fuliginous at apex, a dusky spot in second submarginal cell, also one in the third discoidal cell, the transverse nervure dividing the second and third submarginal cells is absent in both wings, thus making the second submarginal as long as the marginal and receiving both recurrent nervures, the second in the middle; tibiæ and base of tarsi more or less clothed with cinereous pubescence; abdomen convex above, covered with a short dense appressed cinereous pubescence. Length .33 inch.

Hab.—Nevada, (Morrison). One specimen.

Stelis interrupta.—♀.—Small, black; the face, sides of thorax and legs clothed with cinereous pubescence, that on the head and thorax above black and sparse; tegulæ piceous, wings hyaline, dusky on apical margin; abdomen short, convex, almost globose, shining, segments 1—5 each with a narrow whitish band on the middle, all interrupted medially and more or less so on each side; venter nude, immaculate. Length .22 inch.

Hab.—Nevada, (Morrison). One specimen.

Heriades? rotundiceps.—♀.—Black, strongly and rather closely punctured; head broad, almost as large as the thorax, long and prominent behind the eyes and ocelli, face and cheeks clothed with white pubescence, that on the vertex thin and pale fuscous; clypeus truncate in front, mandibles with a patch of short dense yellowish pubescence near tips; thorax clothed with white pubescence, that on scutellum long, and that on mesothorax short and sparse; wings hyaline, marginal cell long, lanceolate, pointed at tip, second submarginal cell a little shorter than the first, narrowed about one-half towards marginal, receiving the first recurrent nervure about one-fourth from the base and the second near the tip; legs clothed with pale pubescence; abdomen convex, about as long as head and thorax taken together, a fringe of short dense white pubescence at apex of the segments; ventral scopa white or very pale ochraceous. Length .27—.30 inch.

Hab.—Nevada, (Morrison); Oregon, (Edwards). Ten specimens.

Heriades? cubiceps.—♀.—Black, head and thorax strongly punctured, sides of face and thorax clothed with whitish pubescence; head very large, quadrate, larger than thorax, full and prominent behind the eyes; middle of clypeus smooth and polished, apical margin deeply emarginate and crenulated; mandibles large and pubescent above; cheeks unarmed; wings clear; legs slender; abdomen small, convex, shining, feebly punctured, the segments narrowly fringed at apex with short white pubescence; ventral scopa white. Length .30—.35 inch.

Hab.—Nevada, (Morrison). Four specimens.

Anthidium emarginatum Say.—♂ variety **atripes.**—Legs entirely black; the white bands on abdomen more deeply emarginate and interrupted, the fifth segment with only two dots, the two apical segments entirely black. Length .45 inch.

Hab.—Nevada, (Morrison). One specimen.

Anthidium californicum.—♂.—Black, clothed with white pubescence, sometimes tinged with ochraceous, that on vertex and thorax above more or less dull yellow; sides of face, clypeus, mandibles except tips, and spot behind summit of each eye yellowish-white; wings tinged with fuscous, neuration as in *emarginatum*; legs clothed with white pubescence, a pale yellow line on outer side of the basal joint of all the tarsi; abdomen shaped as in *emarginatum*, a spot on each side of first segment and sometimes two spots or dots on middle, a band on segments 2—5, more or less broadly and deeply emarginate on each side anteriorly, and interrupted medially, and two spots on middle of sixth segment, all yellowish; a stout acute spine on lateral apical margin of sixth segment; apical segment prominently bilobed at tip, and with a rather long, acute, incurved, central tooth. Length .50 inch.

Hab.—California, (H. Edwards). Two specimens. Closely allied to *emarginatum* Say.

Specimens will doubtless occur with the pale bands on abdomen divided by the emarginations into spots of very unequal size, and which may all disappear except those on the extreme sides of the segments, where they do not seem to diminish in size.

Anthidium placitum.—♀.—Black, clothed with short ochraceous pubescence, that on vertex and mesothorax fuscous; head and thorax closely and finely punctured; sides of face, clypeus except a median stripe, mandibles except tips, a band behind ocelli interrupted medially, lateral margin of mesothorax curved anteriorly, two oblique lines on scutellum, tubercles, and anterior margin of tegulæ, all yellow; wings dusky, neuration as in *emarginatum*; legs yellow, most of coxæ and trochanters, femora above and within and most of the tibiæ within, black, tips of tarsi fuscous; abdomen short, broad, convex, shining, feebly punctured, deeply transversely impressed at base, each segment with a yellow band, those on two or three basal segments slightly interrupted medially, that on first segment slightly notched on each side posteriorly, those on segments 2—5 more or less deeply sinuate or subemarginate on each side anteriorly; ventral scopa pale. Length .40 inch.

Hab.—Nevada, (Morrison). One specimen.

Anthidium blanditum.—♀.—Black, clothed with pale pubescence; sides of face, clypeus, mandibles except tips, band behind ocelli interrupted medially, lateral margin of mesothorax curved anteriorly, two oblique lines on scutellum, anterior margin of tegulæ, tubercles, and spot beneath, yellow; wings dusky, neuration as in *emarginatum*; legs yellow, coxæ, trochanters, femora above and beneath, and tibiæ within, black, tips of tarsi ferruginous; abdomen convex, finely punctured, not transversely impressed at base, segments 1—5 with an even yellow band, slightly narrowed medially and interrupted on first segment; terminal segment entirely yellow, the apical margin slightly notched medially and strongly sinuate on each side; ventral scopa pale. Length .40 inch.

Hab.—Nevada, (Morrison). Two specimens.

Anthidium illustre.—♀.—Black, opaque, densely and finely punctured, clothed with short pale ochraceous pubescence, that on vertex and mesothorax pale fuscous; sides of face broadly and continued nearly to summit, a

narrow band on occiput confluent with broad posterior orbits, clypeus except broad median stripe, mandibles except tips, lateral margin of mesothorax curved inwards anteriorly, broad posterior margin of scutellum, slightly interrupted medially, spot on tegulæ, tubercles and spot beneath, all lemon-yellow; clypeus margined anteriorly; wings tinged with fuscous, a dark streak in marginal cell, second submarginal as long as the first, receiving the recurrent nervures at extreme base and tip; legs lemon-yellow, coxæ, femora and tibiæ within more or less black, tips of tarsi ferruginous; abdomen convex, shining, segments 1—5 each with a rather broad even lemon-yellow band, slightly interrupted on middle, sixth segment yellow with a black spot on each side of the middle, which is depressed, the apical margin deeply and obtusely emarginate in the middle and on each side, the lateral angles acute, making the margin quadridentate; ventral scopa ochraceous. Length .50—.60 inch.

♀ var. **consonum.**—Mandibles and femora mostly, black; sixth dorsal segment of the abdomen yellow, with a rather broad median black stripe. Length .50 inch.

Hab.—Nevada, (Morrison). Three specimens. A very handsome species.

Anthidium conspicuum.—♀.—Black, opaque, densely punctured, clothed with pale ochraceous pubescence, that on vertex and mesothorax pale fuscous; sides of face, attenuated above, sides of clypeus, a narrow band on occiput, interrupted medially and continued nearly half way down the posterior orbits, anterior margin of tegulæ, spot before, a smaller one beneath and four spots on posterior margin of scutellum, all lemon-yellow; wings much as in *illustre* except that the second submarginal cell receives the first recurrent nervure a small distance from the base; legs black, tibiæ above and base of tarsi, yellow, tips of tarsi fuscous; abdomen convex, finely punctured and opaque at tip of segments, shining and slightly transversely impressed at base; segments 1—5 each with a lemon-yellow band, more or less interrupted medially, that on fifth segment broadest, those on first and second notched on each side posteriorly; sixth segment depressed on each side of middle, yellow with a broad median black stripe, apical margin as in *illustre;* ventral scopa ochraceous. Length .55 inch.

Hab.—Nevada, (Morrison). One specimen.

Anthidium singulare.—♀.—Black, opaque, densely punctured; broad anterior orbits, clypeus except central black dot, spot above, dot before anterior ocellus, narrow line on occiput confluent with line on posterior orbits, mandibles except tips, spot on lateral anterior margin of mesothorax, spot on scale-like tubercles, large spot on sides of pleura, posterior margin of scutellum, and outer margin of tegulæ, all yellow; wings stained with fuliginous, second submarginal cell receiving the first recurrent nervure near base, the second recurrent passing a little beyond the tip; legs black, the knees, stripe on femora beneath, their tibiæ above and base of tarsi, yellow, posterior coxæ each with a long yellow spine; abdomen convex, shining, sparsely punctured, extreme sides of segments 2—4 dilated posteriorly into a prominent obtuse tooth, a large yellow spot on sides of segments 1—3, a spot on middle of one, a bilobed spot on middle of two, and two spots nearly confluent on middle of three, the fourth and fifth segments each with a broad apical yellow band, indented on the middle anteriorly and enclosing on each side a black

spot; sixth segment yellow, its apical margin, which is truncate, and stripe down the middle black; ventral scopa ochraceous. Length .55 inch.

Hab.—Nevada, (Morrison). One specimen. Easily recognized by the dilated lateral margin of abdominal segments 2—4.

Anthidium pudicum.—♂.—Small, black, head and thorax thinly clothed with pale pubescence; sides of face, clypeus, spot above, dot behind summit of eyes, mandibles except tips, two small spots on anterior margin of mesothorax, broad margin of tegulæ and spot on large scale in front, all white; thorax finely punctured, the scutellum has sometimes a narrow curved whitish line interrupted medially; wings smoky at tips, second recurrent nervure passing beyond the apex of the second submarginal cell; knees, line on four anterior tibiæ and basal joint of tarsi, and spot at base and apex of posterior tibiæ, white; posterior coxæ with a stout white spine; abdomen convex, strongly punctured, shining, incurved at tip, a white spot on each side of first segment and a line on the middle; segments 2—5 each with a white band, narrowed and slightly interrupted in the middle and more or less deeply emarginate on each side posteriorly, giving the band a bisinuate appearance; terminal segment broadly white at tip, the apical margin trilobate, the lateral lobes broad and rounded. Length .30 inch.

Hab.—Nevada, (Morrison). Two specimens. This is allied to *parvum* Cress.

Anthidium pudens.—♀.—Small, black; head and thorax very densely punctured; spot on each side of face, short line behind the summit of eye, two dots on anterior margin of mesothorax, two narrow lines on scutellum, spot on tegulæ and spot on scale in front, white; wings dusky, especially in marginal cell and at apex, second recurrent nervure passing beyond the apex of second submarginal cell; legs with short griseous pubescence, a white spot at base of all the tibiæ; abdomen shining, sparsely punctured, a spot on each side of first segment and a line on middle, four equidistant spots, arranged in a transverse line, on segments 2—4, and two spots on middle of fifth segment all white; ventral scopa pale yellow. Length .30 inch.

Hab.—Nevada, (Morrison). Two specimens. This may prove to be the ♀ of *pudicum*.

Megachile carbonaria.—♀.—Rather narrow, feebly punctured, shining, black, the pubescence, which is sparse on disk of thorax and abdomen, black; wings dusky on apical margin; abdomen subconvex, clothed with a short erect black pubescence, sparse on the disk, more dense at sides and on basal segment, no fringe on apical margin of the segments; ventral scopa black. Length .50 inch.

Hab.—Nevada, (Morrison). Two specimens.

Megachile subnigra.—♀.—Black, clothed with black pubescence, that on thorax above, a tuft beneath tegulæ, first segment of abdomen and lateral apical margin of second segment, whitish; head and thorax rather closely punctured; disk of thorax almost nude; wings clear; legs shining the pubescence black; abdomen short, shining; ventral scopa black. Length .45 inch.

♂.—Form parallel; the pubescence on head, thorax, anterior femora beneath, and base of abdomen long, dense and whitish, that on the face very

dense and white, that on sides of pleura mixed with black; last joint of antennæ dilated and flattened; anterior tibiæ yellow at tip, their tarsi whitish, not much dilated, and fringed beneath with white pubescence, tipped with black, the basal joint grooved on upper edge, the coxæ toothed, the four posterior legs clothed with black pubescence, that on middle tarsi beneath long and mixed with whitish; abdomen shining, clothed with black pubescence, that on sides of first segment, and narrow apical margin of segments 2—4 white, sixth segment acute at tip, the sides crenulated. Length .36 inch.

Hab.—Nevada, (Morrison). Two specimens.

Megachile legalis.—♂.—Black, opaque, subparallel, clothed with a dense white pubescence, most dense on face, sides of thorax, scutellum and anterior legs beneath; tegulæ dull testaceous; wings clear; anterior femora and tibiæ beneath and their tarsi yellow, the latter slightly dilated, anterior coxæ with two strong spines, four posterior legs thickened, but simple; abdomen with parallel sides, rather strongly punctured, sides of first segment and narrow apical margin of segments 1—5, clothed with whitish pubescence, sixth segment obtusely pointed at tip, faintly crenulated, and produced or prominently carinate on each side beneath. Length .40—.45 inch.

Hab.—Nevada, (Morrison). Three specimens.

Megachile nevadensis.—♀.—Black; head and thorax densely and confluently punctured, clothed with a short, dense ochraceous pubescence, sometimes more or less tinged with yellow or pale fulvous, that on vertex and mesothorax sparse and strongly mixed with black; wings dusky on apical margin; abdomen shining, clothed with sparse black pubescence, the first segment especially at sides and the apical margin and sides of segments 2—5 densely clothed with a yellow or ochraceous pubescence, apical segment pale sericeous; ventral scopa ochraceous, more or less black at extreme tip. Length .45—.55 inch.

♂.—Form parallel, the pubescence longer, much more dense and generally strongly tinged with fulvous, that on vertex and thorax not mixed with black, that on the face very dense and golden; last joint of antennæ dilated and flattened; anterior femora yellowish above, fringed at base beneath with long white pubescence, their tarsi whitish, not much dilated, grooved above at base and fringed beneath with white pubescence edged with black, their coxæ toothed; middle femora swollen, their tarsi beneath with a long fringe of white pubescence; posterior legs incrassate, their coxæ and femora with long white pubescence, their tarsi with thickened joints and pubescent beneath; abdomen convex, with subparallel sides, the basal segments clothed with short dense erect ochraceous, yellow or fulvous pubescence, that on the apical segments more or less mixed with black, the apical margin of the segments with a short dense fringe of ochraceous pubescence; apical margin of sixth segment with numerous very unequal teeth; the tip beneath with a central spine. Length .45—.55 inch.

Hab.—Nevada, (Morrison). Numerous specimens.

Melissodes nevadensis.—♂.—Black; head, thorax, legs and base of abdomen clothed with a long dense pale ochraceous pubescence; clypeus entirely and labrum yellowish-white; antennæ reaching back to tip of second abdominal segment, entirely black, third joint as long as first and second

together, the fourth as long as the first three taken together; wings faintly tinged with fuscous; legs slender, simple; abdomen above clothed with black pubescence, that on the two basal segments and sometimes the apex more or less, pale; venter with pale pubescence. Length .50—.55 inch.

Hab.—Nevada, (Morrison). Numerous specimens. This is allied to *Edwardsii* Cress.

Melissodes acerba.—♀.—Black; face, cheeks, thorax and base of abdomen clothed with a dense pale ochraceous pubescence; wings clear, slightly dusky at tips; legs with black pubescence, that on femora beneath more or less pale; abdomen with short black pubescence, that on first segment pale, apical margin of fourth segment, and sometimes the lateral apical margin of the third, with a band of appressed white pubescence, sometimes both are obsolete; occasionally the lateral apical margin of the fifth segment is whitish. Length .50 inch.

Hab.—Nevada, (Morrison). Seven specimens.

Anthophora carbonaria.—♀.—Broad, robust, black, clothed with a deep black pubescence, that on clypeus more or less, labrum, posterior tibiæ and base of tarsi outwardly, pale ochraceous; wings faintly dusky at tips; abdomen shining, thinly pubescent, apical segment with a pale ochraceous pile. Length .60 inch.

Hab.—Nevada, (Morrison). Two specimens.

Anthophora pernigra.—♀.—Small, black, clothed with black pubescence, that on each side of scutellum slightly mixed with pale; wings dusky at tips; abdomen shining, sparsely pubescent, the fifth segment above and beneath clothed with a fulvous pubescence. Length .45 inch.

Hab.—Nevada, (Morrison). One specimen.

Anthophora ignava.—♀.—Broad, robust, black; head and thorax clothed with a dense cinereous pubescence, that on vertex and mesothorax more or less strongly mixed with black, so that sometimes the mesothorax appears sooty; third joint of antennæ very long and slender, dilated only at tip; wings slightly dusky; legs with black pubescence, that on anterior femora beneath and on posterior tibiæ and base of tarsi outwardly, cinereous; abdomen shining, segments one and two, lateral apical margins of 3—5 and sides of venter clothed with cinereous or whitish pubescence. Length .55—.60 inch.

Hab.—Nevada, (Morrison). Eight specimens. This may prove to be the ♀ of *pacifica* Cress.

Anthophora maculifrons.—♀.—Form small, compact, head broader than thorax, black; head, thorax and legs clothed with a dense cinereous pubescence, sparse on vertex and disk of thorax; spot on middle of face beneath antennæ, broad anterior margin of clypeus, sometimes a narrow stripe down the middle, labrum and mandibles except tips, yellowish-white; tegulæ dull testaceous; wings hyaline; tips of tarsi pale ferruginous, apex of first joint of posterior pair with a comb-like tuft or feather of black pubescence; base of abdomen thinly clothed with white pubescence, the first

segment narrowly and the remaining segments broadly clothed at apex with a very short dense appressed cinereous pile; a patch of short dense yellowish pubescence on apical middle of fifth segment; venter piceous, apical margin of segments dull testaceous. Length .40 inch.

♂.—The pubescence of thorax above sometimes tinged with fulvous: face narrower than ♀ and eyes larger, scape yellowish in front; four anterior tarsi long and slender, nearly twice the length of the tibiæ, posterior legs incrassate; abdomen smaller than in ♀ and more acuminate, apical segment bidentate and fulvous at tip, with a blunt tooth on each side at base. Length .30—.35 inch.

Hab.—Nevada, (Morrison). Twelve specimens. In some specimens the abdomen above is almost entirely covered with the cinereous pile. This and the next two species are allied to *albata* Cress.

Anthophora flexipes.—♀.—Small, same form as *maculifrons*, and very much like it in ornamentation; a whitish stripe connects the broad band on apex of clypeus with the spot on middle of face; the pile on segments 1—4 of abdomen above is of a pale cinereous color, while the two apical segments are entirely black; otherwise there appears to be little or no difference. Length .40 inch.

♂.—Eyes larger; face narrower and clothed, as also the tibiæ, with a dense silvery-white pubescence; scape white in front, flagellum fulvous beneath; tips of the four anterior femora and their tibiæ and tarsi mostly honey-yellow; anterior tibiæ fringed behind with long pale hairs, their tarsi nearly twice as long as the tibiæ, slender, the first joint curved and dilated at tip, blue-black beneath and fringed with long black and white hairs, second joint short, black, remaining joints longer, yellow, the apical spurs and claws black; intermediate tibiæ short, dilated and covered with a dense white pile, their tarsi extremely long and slender, being nearly four times the length of the tibiæ, the first joint as long as the tibiæ, twisted flattened and fringed behind with short black hair, remaining joints shorter, equal in length and subfiliform, the single spur at tip of the tibiæ long and very acute; posterior legs incrassate, their tibiæ covered with a dense white pile, their tarsi a little longer than the tibiæ, the first joint as long as the remaining joints taken together, black, narrow at base, then suddenly dilated and then narrowed to tip, and fringed behind with long black hair; abdomen much as in the ♀, but smaller, with the two apical segments black, apex bidentate. Length .35 inch.

Hab.—Nevada, (Morrison). Eight specimens. The tarsal structure of the ♂ of this little species is exceedingly curious, all three sets being differently formed.

Anthophora exigua.—♀.—Form of the two preceding species, but much smaller; black, clothed with a cinereous pubescence; thorax above with short sparse black pubescence; transverse mark on middle of face, broad anterior margin of clypeus, labrum except upper corners, and base of mandibles, white; vertex and occiput with a few black hairs; tegulæ piceous, margined with testaceous; wings hyaline; legs robust, densely clothed with cinereous pubescence, the four posterior legs with black pubescence on under side, basal joint of posterior tarsi broad, with an apical comb-like tuft of

black pubescence as in *maculifrons;* abdomen convex, entirely covered above with cinereous pile, extreme apex black; venter piceous, shining. Length .30 inch.

♂.—Closely resembles the ♀, the face narrower and more pubescent, the eyes larger, the scape whitish in front, the thorax not clothed with black above, the legs more slender, the tarsi longer, more slender, but simple, and the abdomen smaller and narrower. Length .25 inch.

Hab.—Nevada, (Morrison). Eight specimens.

Anthophora sodalis.—♂.—Black; head, thorax and base of abdomen clothed with a rather long, dense ochraceous pubescence, that on thorax and base of abdomen above strongly tinged with ferruginous; sides of face, clypeus, line above, labrum, dot on base of mandibles and spot on scape in front, white; wings faintly dusky on apical margins; legs thickened, especially the posterior pair, and simple, except basal joint of posterior tarsi which is broad, flat and having a stout subacute tooth within near the base, posterior femora subfusiform; abdomen with the two basal segments above clothed with a short fulvo-ferruginous pubescence, that on remaining segments short and black, mixed with pale on apical margin of the third; terminal segment bidentate; venter with a patch of long pale pubescence near apex. Length .55 inch.

Hab.—Nevada, (Morrison). One specimen.

Anthophora centriformis.—♂.—Black; head, thorax, legs and basal segment clothed with a dense cinereous pubescence, that on thorax above tinged with ochraceous; sides of face, clypeus, transverse mark above, labrum except a piceous spot on each side, base of mandibles and scape in front, white; third joint of antennæ slender, dilated at tip; wings hyaline; legs thickened, especially the posterior pair, basal joint of posterior tarsi broad, flat, dilated on inner edge near tip, the other tarsi simple; abdomen narrowed to apex, shining, with a very short sparse black pubescence on second and remaining segments, more or less mixed with pale on the lateral apical margins; terminal segment obtuse, with a patch of white pubescence on each side; venter with cinereous pubescence on middle of the segments. Length .55 inch.

Hab.—Nevada, (Morrison). One specimen. This has much the form and general appearance of certain species of the genus *Centris.*

Xylocopa arizonensis.—♀.—Shining black, with a strong dark or steel-blue reflection; cheeks, thorax except disk above, and the legs, clothed with black pubescence; head opaque, deeply punctured, densely so on face; the two posterior ocelli sunken, carinate in front; face depressed about base of antennæ, with a short tubercle in front of anterior ocellus; labrum emarginate at tip; thorax deeply punctured, smooth and shining on disk of mesothorax and base of scutellum; wings violaceous-black; abdomen sparsely punctured, sides of ventral segments fringed with black pubescence. Length 1 inch.

♂.—Shorter and more robust than ♀, the blue color rather more brilliant, the pubescence more dense, that on mesothorax anteriorly, sides of pleura and on basal segment of abdomen more or less pale; face much narrower, eyes larger and labrum not emarginate at tip. Length .85 inch.

Hab.—Arizona, (H. Edwards). Two specimens.

Xylocopa subvirescens.—♀.—Head black tinged with blue, and with a slight tinge of green on middle of face, clothed with white pubescence, which is rather dense on cheeks and occiput, thin and slightly mixed with black on the face; antennæ slender, castaneous, flagellum black above; thorax blue laterally, beneath and posteriorly, clothed with whitish pubescence, mesothorax and scutellum submetallic olive-green, changing to purple on the disk, clothed with a yellowish pubescence, wanting on the smooth, impunctured disk; tegulæ fulvo-testaceous; wings yellowish-hyaline, nervures honey-yellow; legs more or less varied with shades of brown, clothed with whitish or pale ochraceous pubescence, that on tarsi beneath rufo-fuscous; abdomen strongly tinged with green, clothed with an appressed pale pubescence, yellowish on basal segments and more dense and white on apical margin of the segments, a narrow smooth line down the middle of the segments, which has sometimes a purplish tinge; anal fimbria blackish, tipped with ferruginous; venter blue-green, clothed with white pubescence, that on two apical segments black. Length .55 inch.

♂.—The green color on thorax and abdomen more brilliant, the pubescence more decidedly yellow and more dense; sides of face, clypeus, spot above, labrum, spot or line on mandibles, scape beneath, and sometimes the basal joints of flagellum beneath, dull yellowish; sometimes there are two black spots on clypeus towards base; cheeks with long white pubescence; otherwise very much like the ♀, except the narrower face and larger eyes. Length .50—.55 inch.

Hab.—Mexico, (Sumichrast). Four specimens.

Centris montezuma.—♀.—Black; head and thorax with short, dense ochraceous pubescence, paler on cheeks and thorax beneath, that on head, thorax above and on sides tipped with black; clypeus concave, a prominence on each side at base, the apical margin slightly recurved, sharp and truncate; sides of face narrowly, an interrupted band on clypeus, labrum except base, and mandibles except tips, yellow; flagellum testaceous beneath: wings dark fuscous, paler on apical margins; legs with pale pubescence, that on the four posterior tibiæ and tarsi fulvous, long and dense on posterior pair, that on base of intermediate tarsi short fuscous and fringed behind with fulvous; abdomen fulvous, shining, first segment stained at base with brown, and thinly clothed with a pale pubescence more or less tipped with black, that on apical segments fulvous. Length .80 inch.

♂.—The yellow band on clypeus broad and entire; posterior femora very much swollen, their tibiæ rather more robust than in ♀ and fringed behind with fulvous pubescence, as is also the basal joint of their tarsi; abdomen narrower and more convex and more thickly pubescent at base and apex. Length .70 inch.

Hab.—Mexico, (Sumichrast). Two specimens.

Centris totonaca.—♀.—Small, black; head and thorax thickly clothed with a whitish pubescence, that on vertex black, and that on thorax above ochraceous; clypeus prominent, depressed medially, two confluent spots on anterior margin, labrum and mandibles except tips yellow; flagellum dull testaceous beneath; tegulæ fulvous; wings hyaline; legs brown, the two posterior pair more or less varied with fulvous, posterior femora slender, their tibiæ with long yellow pubescence, that on their tarsi black; abdomen fulvous,

with yellowish pubescence at tip, basal segment blackish, thinly clothed with pale pubescence. Length .40 inch.

Hab.—Mexico, (Sumichrast). One specimen. This is allied to *fulviventris* Cress.

Centris otomita.—♂.—Small, black; head clothed above with black pubescence, that between antennæ and on cheeks dense and white; clypeus, labrum, mandibles except tips and spot at tip of scape beneath, yellowish-white; thorax clothed with a dense fulvo-ochraceous pubescence above, that beneath nearly white; tegulæ fulvous; wings hyaline; legs brown, varied with black, clothed with white pubescence, posterior femora swollen, their tibiæ and base of tarsi fringed behind with long black pubescence, basal joint of their tarsi with a sharp spine on middle of posterior edge; abdomen shining black, the basal, two or three apical, and the ventral segments clothed with pale ochraceous pubescence. Length .40 inch.

Hab.—Mexico, (Sumichrast). One specimen.

Apathus? californicus.—♂.—Black; head clothed with yellow pubescence, more or less mixed with black on occiput and cheeks; face long, the clypeus convex, smooth, shining and almost nude, space between the eyes and base of mandibles very broad and polished; thorax densely clothed with yellow pubescence in front of the tegulæ, elsewhere it is black, sometimes the scutellum is more or less mixed with yellow, and occasionally the pubescence of the thorax is entirely yellow except a black band between the wings; wings fusco-hyaline, clearer towards base; legs with short black pubescence, sometimes more or less mixed with yellow; the pubescence of the abdomen is generally black, with that on segments four and five yellow; sometimes the apical margin of segments 1—3 are yellow, and in one specimen the pubescence of the abdomen is entirely yellow except that on middle of segments two and three, and on apical segment. Length .55—.65 inch.

Hab.—California, (H. Edwards). Twelve specimens. This species has the same form as that of *elatus* Fabr., having the face long as in *Bombus*, and the clypeus prominent and sparsely pubescent, in which respect they differ from all the other species of the genus known to me.

Panurgus nevadensis.—♂.—Piceous, clothed with long fulvous-yellow pubescence, rather dense on face, cheeks, thorax and legs; face broad; clypeus except two black points, and a triangular spot on each side on lower angle of face, yellow; tips of mandibles castaneous; flagellum fulvous beneath; wings hyaline, dusky at tips, nervures and stigma brown, neuration as in *andrenoides*; legs brown-black, slender, clothed with long pale pubescence; abdomen polished, thinly clothed with pale pubescence, more dense at apex, lateral apical margins of the segments with a fringe of short pale pubescence, more obvious in certain lights. Length .30 inch.

Hab.—Nevada, (Morrison). Eight specimens. This is closely allied to *andrenoides* Cress.

CATALOGUE OF NORTH AMERICAN APIDÆ.*

BY E. T. CRESSON.

PANURGUS Panz.

chalybæus Cresson, Trans. Am. Ent. Soc. vii, p. 61, ♂ ♀. California.
maurus Cress. ibid. 61, ♀. Colorado.
regularis Cress. ibid. 62, ♂. California.
andrenoides Cress. ibid. 62, ♂. Colorado, Texas.
nevadensis Cress. ibid. 214, ♂. Nevada.
nigrifrons Cress. ibid. 62, ♂. Texas.
marginatus Cress. ibid. 62, ♀. Kansas.
halictulus Cress. ibid. 63, ♂. Colorado, Utah.
fimbriatus Cress. ibid. 63, ♀. Colorado.
parvus Cress. Proc. Ent. Soc. Phila. iv, 175, ♂ ♀. Cuba.

CALLIOPSIS Smith.

andreniformis Sm. Brit. Mus. Cat. i, 128, ♀. Mid. South. & West. States.
flavipes Sm. ibid. 129, ♂. Can., East. Mid. & South. States.
maculatus Sm. ibid. 129, ♀. Florida, +.
flavifrons Sm. ibid. 129, ♂. Florida, +.
coloradensis Cress. Trans. vii, 63, ♂ ♀. Colorado.
zebratus Cress. ibid. 64, ♀. Colorado.
cinctus Cress. ibid. 201, ♂ ♀. Nevada.
zonalis Cress. ibid. 201, ♂. California.
scitulus Cress. ibid. 64, ♀. Colorado.
Edwardsii Cress. ibid. 64, ♂ ♀. California, Nevada.
var. *lateralis* Cress. Trans. vii, 65, 201, ♀.
pictipes Cress. ibid. 65, ♂. Colorado.
obscurellus Cress. ibid. 201, ♂ ♀. California.
æthiops Cress. (*Panurgus*) Trans. iv, 259, ♂ ♀. Texas.
mexicanus Cress. Trans. vii, 65, ♂ ♀. Mexico.
ornatipes Cress. (*Panurgus*) Trans. iv, 260, ♂ ♀. Colorado, Texas.
albitarsis Cress. (*Panurgus*) ibid. 260, ♂ ♀. Colorado, Texas, California.
var. *Panurgus picipes* Cress. Trans. iv, 261, ♂.
illinoiensis Cress. Trans. vii, 66, ♂. Illinois.
pauper Cress. ibid. 66, ♂ ♀. New York, Colorado.
californicus Cress. ibid. 67, ♂. California.
atricornis Cress. ibid. 67, ♂. Colorado.
clypeatus Cress. ibid. 67, ♂. Colorado.
atriceps Cress. ibid. 67, ♂. California.
lepidus Cress. ibid. 68, ♀. Georgia.
abdominalis Cress. ibid. 68, ♂ ♀. Texas.

PERDITA Smith.

halictoides Sm. Brit. Mus. Cat. i, 128. North America, +.
hyalina Cress. Trans. vii, 68, ♂. Colorado.
albipennis Cress. Trans. i, 386, ♀. Colorado, Texas, New Mexico.

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* The sign + indicates that the species is unknown to me. Specimens of all the other species given in this catalogue are contained in the Collection of the American Entomological Society, unless otherwise mentioned.

zonalis Cress. Trans. vii, 202, ♀. Nevada.
zebrata Cress. ibid. 69, ♀. Colorado, Nevada.
8-maculata Say, (*Panurgus*) Long's 2d Exp. ii, 350, ♂ ♀. N. Y., N. J., Va.
affinis Cress. Trans. vii, 69, ♂ ♀. Colorado.
obscurata Cress. ibid. 70, ♂ ♀. Georgia.
interrupta Cress. ibid. 70, ♂. California.

MACROTERA Smith.

bicolor Sm. Brit. Mus. Cat. i, 130, ♀. Mexico, +.
texana Cress. Trans. vii, 70, ♀. Texas.
megacephala Cress. ibid. 71, ♂. Texas.
californica Cress. ibid. 71, ♂. California.
cephalotes Cress. ibid. 71, ♂. Nevada.

NOMADA Fabr.

grandis Cress. Wheeler Exp. 1875, v. 725, ♂ ♀. Colorado.
superba Cress. Proc. ii, 281, ♂. Colorado.
Edwardsii Cress. Trans. vii, 72, ♂. California.
vinnula Cress. ibid. 202, ♂ ♀. Nevada.
jocularis Cress. ibid. 202, ♀. Nevada.
Morrisoni Cress. ibid. 72, ♀. Colorado.
Belfragei Cress. ibid. 72, ♀. Texas.
zebrata Cress. ibid. 73, ♂ ♀. Kansas, Colorado.
opposita Cress. ibid. 73, ♀. California.
adducta Cress. ibid. 73, ♂. Colorado.
affabilis Cress. ibid. 74, ♂. New York, Illinois.
Putnami Cress. Proc. Dav. Acad. Nat. Sci. i, 210, ♂ ♀. Colorado, Utah.
Ridingsii Cress. Trans. vii, 74, ♀. Colorado.
suavis Cress. ibid. 74, ♀ ♂. Nevada, California, Oregon.
Snowii Cress. ibid. 75, ♂ ♀. Colorado.
Heiligbrodtii Cress. ibid. 75, ♂ ♀. Texas.
verecunda Cress. ibid. 203, ♂ ♀. Nevada.
modesta Cress. Proc. ii, 286, ♂ ♀. Maine, Illinois, Colorado, Dakota.
festiva Cress. ibid. 289, ♀. New Jersey.
placida Cress. ibid. 291, ♂ ♀. Pennsylvania.
cubensis Cress. Proc. iv, 180, ♂ ♀. Cuba.
Krugii Cress. Trans. vii, 75, ♂ ♀. Porto Rico.
texana Cress. Trans. iv, 271, ♂ ♀. Texas, Mexico.
tibialis Cress. Proc. iv, 182, ♀. Cuba.
limata Cress. Trans. vii, 76, ♀. Mexico.
mexicana Cress. ibid. 76, ♀. Mexico.
fervida Sm. Brit. Mus. Cat. ii, 247; Cress. Proc. ii, 294, ♂ ♀. Georgia, Florida.
pilosula Cress. Trans. vii, 77, ♂. New York.
electa Cress. Proc. ii, 290, ♂ ♀. Connecticut, Illinois, Kansas.
vicina Cress. ibid. 292, ♂ ♀. Connecticut, New York.
proxima Cress. ibid. 294, ♂. Maine.
bella Cress. ibid. 287, ♂. Massachusetts, Connecticut.
gracilis Cress. ibid. 295, ♂. Massachusetts.
lepida Cress. ibid. 288, ♂. Illinois, Colorado.
articulata Sm. Brit. Mus. Cat. ii, 248; Cress. Proc. ii, 297, ♂. Mass., Ga., Ill.
scita Cress. Trans. vii, 77, ♂. Colorado.
accepta Cress. ibid. 77, ♂ ♀. Kansas, Colorado.

vincta Say, Bost. Jour. i, 401; Cress. Proc. ii, 284, ♂ ♀. E. M. & W. States.
pulchella Sm. Brit. Mus. Cat. ii, 247, ♂.
luteola St. Farg.; Cress. Proc. ii, 282, ♂ ♀. E. M. & S. States.
sulphurata Sm. Brit. Mus. Cat. ii, 249, ♀.
suda Cress. Trans. vii, 203, ♀. Nevada.
vitticollis Cress. Trans. vii, 78, ♀. Mexico.
civilis Cress. ibid. 78, ♂. Colorado.
vicinalis Cress. ibid. 78, ♂. Colorado.
rivalis Cress. ibid. 79, ♂. California, Nevada.
fragilis Cress. ibid. 79, ♂. Colorado.
citrina Cress. ibid. 79, ♀. California, Nevada.
munda Cress. ibid. 80, ♀. Colorado.
dilucida Cress. ibid. 80, ♀. Colorado.
libata Cress. ibid. 80, ♂ ♀. Colorado.
parata Cress. ibid. 81, ♀. Colorado.
pacata Cress. ibid. 81, ♀. Colorado.
Crotchii Cress. ibid. 81, ♀. California.
crudelis Cress. ibid. 82, ♀. Georgia.
torrida Sm. Brit. Mus. Cat. ii, 250; Cress. Proc. ii, 300, ♀. Penn., Georgia.
bisignata Say; Cress. Proc. ii, 305, ♂ ♀. Can., E. M. S. & W. S., Cala., B. Col.
var. *americana* Kby.; Cress. Proc. ii, 308.
var. *valida* Sm. Brit. Mus. Cat. ii, 246; Cress. Proc. ii, 308, ♀.
var. *maculata* Cress. Proc. ii, 303, ♂ ♀.
var. *obliterata* Cress. ibid. 301, ♀.
var. *depressa* Cress. ibid. 302, ♀.
var. *perplexa* Cress. ibid. 306, ♂ ♀.
var. *amœna* Cress. ibid. 300, ♀.
var. *pygmæa* Cress. ibid. 299, ♂.
incerta Cress. Proc. ii, 309, ♀. Middle, Southern and Western States.
melliventris Cress. Trans. vii, 82, ♂. California.
flaviceps Cress. Proc. iv, 181, ♂. (Coll. Gundlach). Cuba.
punctata Fabr.; Cress. Proc. ii, 296. Canada, +.
rubicunda Oliv.; Cress. Proc. ii, 299. Carolina, +.
imbricata Sm. Brit. Mus. Cat. ii, 246; Cress. Proc. ii, 296, ♀. U. States, +.
annulata Sm. ibid. 248; Cress. Proc. ii, 297, ♂ ♀. N. Am. +.
miniata Sm. ibid. 250; Cress. Proc. ii, 308, ♀. Georgia, +.
armata Sch.; Cress. Proc. ii, 311, ♂ ♀. Nova Scotia, +.
ruficornis Linn.; Cress. Proc. ii, 310, ♂ ♀. North America, +.

PASITES Latr.

pilipes Cress. Proc. iv, 183, ♂ ♀. Cuba.

OSIRIS Smith.

mexicanus Cress. Trans. vii, 82, ♂ ♀. Mexico.
marginatus Cress. ibid. 83, ♂ ♀. Mexico.

PHILEREMUS Latr.

americanus Cress. Trans. vii, 83, ♂ ♀. Canada, Colorado.
montanus Cress. ibid. 83, ♂. Nevada.
fulviventris Cress. ibid. 83, ♂. California.
? pulchellus Cress. ibid. 84, ♂ ♀. Colorado.
? productus Cress. ibid. 203, ♀. Nevada.

EPEOLUS Latr.

4-fasciatus Say, West. Quar. Rep. ii, 82; Cress. Proc. ii, 395, ♂ ♀. Tex., Ark.
distinctus Cress. Trans. vii, 84, ♂ ♀. Georgia.
bardus Cress. ibid. 84, ♀. Texas.
zacatecus Cress. ibid. 85, ♀. Mexico.
concavus Cress. ibid. 85, ♀. Georgia, Louisiana, N. Mex., California.
remigatus Fabr.; Cress. Proc. ii, 393, ♂ ♀. New York, Penn., Georgia, Mex.
lunatus Say, Long's 2d Exp. ii, 354; Cress. Proc. ii, 394, ♂ ♀. M. S. & W. S.
Wilsoni Cress. Proc. iv, 183, ♂. Cuba.
robustus Cress. Trans. vii, 85, ♀. New Mexico.
nevadensis Cress. ibid. 86, ♀. Nevada.
vicinus Cress. Proc. iv, 185, ♂ ♀. Cuba.
pulchellus Cress. ibid. 185, ♂. (Coll. Gundlach). Cuba.
californicus Cress. Trans. vii, 86, ♀. California.
scelestus Cress. ibid. 86, ♀. Texas.
totonacus Cress. ibid. 87, ♀. Mexico.
texanus Cress. ibid. 87, ♂. Texas.
occidentalis Cress. ibid. 87, ♂ ♀. Texas, Colorado, Nevada, California.
tepanecus Cress. ibid. 88, ♂. Mexico.
donatus Sm. Brit. Mus. Cat. ii, 256; Cress. Proc. ii, 396, ♂ ♀. E. M. S. & W. S.
scutellaris Say, Long's 2d Exp. ii, 82; Cress. Proc. ii, 397, ♀. Penn., Ark.
mercatus Fabr.; Cress. Proc. ii, 395; Trans. vii, 88, ♂ ♀. Va., Ga., Tex.
lectus Cress. Trans. vii, 88, ♀. Kansas.
agnatus Cress. ibid. 89, ♂. Dakota.
compactus Cress. ibid. 89, ♂ ♀. Texas, Colorado, Nevada, California.
pusillus Cress. Proc. ii, 398, ♂ ♀. New Hampshire, Massachusetts.
aztecus Cress. Trans. vii, 89, ♀. Mexico.
mexicanus Cress. ibid. 90, ♂ ♀. Mexico.
fumipennis Say, Bost. Jour. i, 403; Cress. Proc. ii, 398, ♂ ♀. Ga., La., Ill., Mex.
bifasciatus Cress. Proc. iii, 38, ♂.
zonatus Sm. Brit. Mus. Cat. ii, 257; Cress. Proc. ii, 397, ♂ ♀. Florida.
glabratus Cress. Trans. vii, 90, ♂. Georgia.

LIOGASTRA Perty.

4-plagiata Sm. Journal of Entomology, i, p. 83, ♂ ♀. Mexico.

CROCISA Jurine.

? lata Cress. Trans. vii, 91, ♂. Texas.

MELECTA Latr.

interrupta Cress. Trans. iv, 275, ♂ ♀. Texas.
californica Cress. Trans. vii, 91, ♂ ♀. California, Nevada.
thoracica Cress. Wheeler Exp. 1875, v. 726, pl. 33, fig. 5, ♀. Colorado, Nevada.
pacifica Cress. Trans. vii, 91, ♂. California, Nevada.
var. *fulvida* Cress. Trans. vii, 204, ♀. Nevada.
separata Cress. ibid. 204, ♀. Nevada.
Edwardsii Cress. ibid. 92, ♂. California.
maculata Cress. ibid. 204, ♂ ♀. Nevada.
? mucida Cress. ibid. 205, ♂. Nevada.

MELISSA Smith.

rufipes Perty; Cress. Proc. iv, 188, ♂ ♀. Cuba.
regalis Sm. Brit. Mus. Cat. ii, 280, ♂ ♀. Mexico.

MESOCHEIRA Smith.

bicolor Fabr. (Melecta) Syst. Piez. 386. Mexico, West Indies.

CHRYSANTHEDA Perty.

nitida Perty; Sm. Trans. Ent. Soc. Lond. 3d ser. i, 41. Mexico, Panama.

STELIS Panz.

australis Cress. Trans. vii, 92, ♀. Georgia.
costalis Cress. Trans. iv, 274, ♂ ♀. Texas.
laticincta Cress. Trans. vii, 92, ♀. California.
lateralis Cress. Proc. ii, 410, ♀. Pennsylvania, Nevada.
interrupta Cress. Trans. vii, 205, ♀. Nevada.
foederalis Sm. Brit. Mus. Cat. ii, 275; Cress. Proc. ii, 410, ♂ ♀. U. States, +.
obesa Say, Bost. Jour. i, 398; Cress. Proc. ii, 409. Indiana, +.
montana Cress. Proc. iii, 39, ♀. Colorado, Nevada.
? **nitida** Cress. Trans. vii, 92, ♀. Canada, New York.
? **submarginata** Cress. Trans. vii, 93, ♀. Colorado.
? **elegans** Cress. Proc. ii, 410, ♀. Colorado.
? **subcerulea** Cress. Trans. vii, 93, ♂. Colorado, Nevada.
? **monticola** Cress. ibid. 94, ♀. Colorado.

CŒLIOXOIDES Cress.

punctipennis Cress. Trans. vii, 94, ♀. Mexico.

CŒLIOXYS Latr.

texana Cress. Trans. iv, 272, ♂ ♀. Texas.
alternata Say, Bost. Jour. i, 401; Cress. Proc. ii, 406, ♂ ♀. Ind., Col., Nev.
modesta Sm. Brit. Mus. Cat. ii, 271; Cress. Proc. ii, 404, ♂ ♀. Pa., N. Y., Mex.
toltecа Cress. Trans. vii, 95, ♀. Mexico.
producta Cress. Proc. iv, 187, ♀; Trans. ii, 297, ♂. Cuba.
aperta Cress. Trans. vii, 95, ♀. Colorado.
deplanata Cress. ibid. 96, ♀. Kansas, Colorado.
Comstockii Cress. ibid. 96, ♀. New York.
chichimeca Cress. ibid. 97, ♀. Mexico.
4-dentata Linn.; Cress. Proc. ii, 409, ♂ ♀. New York.
altilis Cress. = *brevis* Cress. (nec. Eversm.) Proc. ii, 402, ♂ ♀. E. & M. States.
rufipes Guér. Icon. iii, 452, pl. 73, fig. 9; Cress. Proc. ii, 407, iv, 186, ♂ ♀. Cuba.
Uhleri Cress. Proc. iv, 186, ♀. Cuba.
dubitata Sm. Brit. Mus. Cat. ii, 272; Cress. Proc. ii, 400, ♀. N. Y., Del., Ks., Fla.
rufitarsus Sm. ibid. 271; Cress. ibid. 400, ♂. Mass., N. Y., Tex.
8-dentata Say; Cress. Proc. ii, 401, ♂ ♀. Can., E. M. S. & W. States.
lucrosa Cress. Trans. vii, 97, ♀. New York, Colorado.
funeraria Sm. Brit. Mus. Cat. ii, 272; Cress. Proc. ii, 404, ♂. Canada, +.
tegularis Cress. Trans. ii, 297, ♀. (Coll. Gundlach). Cuba.
floridana Cress. Trans. vii, 98, ♂. Florida.
lateralis Cress. Proc. ii, 405, ♂. Pennsylvania.
mœsta Cress. ibid. 403, ♂ ♀. Connecticut, Colorado, Nevada.
insita Cress. Trans. iv, 273, ♀. Texas.
coloradensis Cress. Trans. vii, 98, ♂. Colorado.
sodalis Cress. ibid. 99, ♂. New York, Colorado.
edita Cress. Trans. iv, 272, ♂ ♀. Texas.
scitula Cress. ibid. 273, ♂ ♀. Texas.

mexicana Cress. Trans. vii, 99, ♂ ♀. Mexico.
zapoteca Cress. ibid. 99, ♀. Mexico.
azteca Cress. ibid. 100, ♀. Mexico.
tepaneca Cress. ibid. 100, ♀. Mexico.
otomita Cress. ibid. 101, ♀. Mexico.
totonaca Cress. ibid. 102, ♂ ♀. Mexico.
germana Cress. ibid. 102, ♀. Illinois.
abdominalis Guér. Icon. iii, 453; Cress. Proc. ii, 408, ♂. Cuba.

OSMIA Panz.

bucephala Cress. Proc. iii, 17, ♀. B. Am., Mass., N. Y., Va.
megacephala Cress. ibid. 18, ♀. Colorado.
mandibularis Cress. Trans. vii, 102, ♀. Colorado.
chalybea Sm. Brit. Mus. Cat. i, 143; Cress. Proc. iii, 22, ♂ ♀. Georgia, Florida.
faceta Cress. Trans. vii, 103, ♂ ♀. Canada, New York, Georgia.
longula Cress. Proc. iii, 19, ♀. Colorado.
juxta Cress. ibid. 19, ♀. Colorado.
simillima Sm. Brit. Mus. Cat. i, 142; Cress. Proc. iii, 28, ♂ ♀. E. & M. States.
atriventris Cress. Proc. iii, 29, ♀. Can., E. M. & S. States, Cala.
frigida Sm. Brit. Mus. Cat. i, 142; Cress. Proc. iii, 26, ♂ ♀. N. America, +.
dubia Cress. Proc. iii, 29, ♂ ♀. Colorado, Nevada.
purpurea Cress. ibid. 27, ♀. Connecticut, Pennsylvania, Illinois.
globosa Cress. ibid. 36, ♀. British America.
abjecta Cress. Trans. vii, 103, ♀. Colorado.
lignaria Say, Bost. Jour. i, 399; Cress. Proc. iii, 22, ♂ ♀. E. M. S. & W. States.
propinqua Cress. Proc. iii, 23, ♀.
nigrifrons Cress. Trans. vii, 103, ♀. Colorado, Nevada.
densa Cress. Proc. iii, 25, ♀. Colorado.
pusilla Cress. ibid. 35, ♂ ♀. Colorado, Nevada.
brevis Cress. ibid. 36, ♀. Colorado, Nevada.
armaticeps Cress. Trans. vii, 104, ♀. Colorado.
quadriceps Cress. ibid. 104, ♀. California, Nevada.
maura Cress. ibid. 104, ♀. California, Nevada.
californica Cress. Proc. iii, 24, ♀. California, Nevada.
fulgida Cress. ibid. 34, ♂ ♀. Colorado, Nevada.
viridis Cress. ibid. 34, ♀.
cobaltina Cress. Trans. vii, 104, ♀. Nevada, California.
distincta Cress. Proc. iii, 30, ♀. Connecticut.
coloradensis Cress. Trans. vii, 105, ♀. Colorado.
georgica Cress. ibid. 105, ♀. Georgia.
conjuncta Cress. Proc. iii, 31, ♀. Connecticut.
albiventris Cress. ibid. 31, ♂ ♀. Can., E. M. S. & W. States.
pumila Cress. ibid. 35, ♀. Pennsylvania.
subfasciata Cress. Trans. iv, 261, ♂ ♀. Texas.
azteca Cress. Trans. vii, 105, ♀. Mexico.
latitarsis Cress. Proc. iii, 20, ♂. New York, Virginia.
abnormis Cress. Trans. vii, 105, ♂. Colorado.
integra Cress. ibid. 106, ♂. Colorado.
marginipennis Cress. ibid. 106, ♂. Colorado.
hudsonica Cress. Proc. iii, 21, ♂. Hudson's Bay Territory.
montana Cress. ibid. 24, ♂. Colorado.

cognata Cress. Proc. iii, 33, ♂. Can., Mass., N. Y., Ill.
canadensis Cress. Proc. iii, 33, ♂.
proxima Cress. Proc. iii, 32, ♂. Brit. Am., Can., E. M. S. & W. States.
texana Cress. Trans. iv, 261, ♂. (Coll. Belfrage). Texas.
4-dentata Cress. Trans. vii, 107, ♂. New York.
sericea Cress. Proc. iii, 27, ♂. Colorado.
inurbana Cress. Trans. vii, 107, ♂. Colorado.
rustica Cress. Proc. iii, 37, ♂. New York, Pennsylvania, Georgia.
vicina Cress. ibid. 38, ♂. Canada, Virginia.
bella Cress. Trans. vii, 107, ♂. Colorado, Nevada.
exigua Cress. ibid. 107, ♂. California.
bucconis Say, Bost. Jour. i, 400; Cress. Proc. iii, 26, ♀. Indiana, +.

HERIADES Spin.

carinatum Cress. Proc. ii, 383, ♂ ♀. Eastern, Middle and Southern States.
variolosum Cress. (Megachile), Trans. iv, 270, ♂ ♀. Illinois, Texas, Colorado.
? **denticulatum** Cress. Trans. vii, 108, ♂. Colorado, Nevada.
? **osmoides** Cress. (Megachile), Trans. iv, 269, ♀. Texas.
? **rotundiceps** Cress. Trans. vii, 205, ♀. Nevada, Oregon.
? **cubiceps** Cress. ibid. 205, ♀. Nevada.

CHELOSTOMA Latr.

californicum Cress. Trans. vii, 108, ♂. California.
rugifrons Sm. Brit. Mus. Cat. ii, 220; Cress. Proc. ii, 382, ♀. Georgia, +.
albifrons Kirby, Faun. Bor. Am. iv, 270; Cress. Proc. ii, 382, ♂. N. Am., +.

ANDRONICUS Cress.

cylindricus Cress. Proc. ii, 384, ♂ ♀. New York, Connecticut.

ALCIDAMEA Cress.

producta Cress. Proc. ii, 386, ♂. Can., E. M. S. & W. States.
var. *pilosifrons* Cress. ibid. 386, ♂.
Heriades simplex Cress. ibid. 384, ♀.
truncata Cress. Trans. vii, 108, ♂. Georgia.

MONUMETHA Cress.

borealis Cress. Proc. ii, 388, ♂ ♀. Br. Am., H. B. T., Me., Col., Nev.
argentifrons Cress. Proc. ii, 387, ♂.
obsoleta Cress. ibid. 388, ♂.

ANTHIDIUM Fabr.

maculifrons Sm. B. M. C. ii, 214; Cress. Proc. ii, 375, ♂ ♀. Col., Tex., N. Mex.
cognatum Cress. Trans. vii, 109, ♂ ♀. Georgia.
maculatum Sm. Brit. Mus. Cat. ii, 216; Cress. Proc. ii, 376, ♂. Mexico, +.
azteeum Cress. Trans. vii, 109, ♂ ♀. Mexico.
maculosum Cress. ibid. 110, ♂ ♀. Utah, Nevada, California.
mormonum Cress. ibid. 110, ♂. Utah.
emarginatum Say, (Megachile); Cress. Proc. ii, 374, ♂ ♀. W. States, Cal. Nev.
atrifrons Cress. Trans. i, 387, ♀.
var. *atripes* Cress. Trans. vii, 205, ♂. Nevada.
californicum Cress. ibid. 206, ♂. California.
montivagum Cress. ibid. 110, ♂ ♀. Colorado.

atriventre Cress. Trans. vii, 111, ♂ ♀. California, Nevada.
palliventre Cress. ibid. 114, ♀. California.
jocosum Cress. ibid. 111, ♂. Colorado.
placitum Cress. ibid. 206, ♀. Nevada.
zebratum Cress. Trans. iv, 270, ♂ ♀. Texas, Colorado.
occidentale Cress. Trans. i, 386, ♂ ♀. Colorado, New Mexico, Nevada.
Ridingsii Cress. Trans. vii, 111, ♀. Georgia.
crassipes Cress. ibid. 112, ♀. Florida.
Edwardsii Cress. ibid. 112, ♂. California.
blanditum Cress. ibid. 206, ♀. Nevada.
illustre Cress. ibid. 206, ♀. Nevada.
var. *consonum* Cress. Trans. vii, 207, ♀. Nevada.
conspicuum Cress. Trans. vii, 207, ♀. Nevada.
formosum Cress. ibid. 112, ♂. Colorado.
singulare Cress. ibid. 207, ♀. Nevada.
venustum Cress. ibid. 113, ♀. Colorado.
interruptum Say, (Megachile); Cress. Proc. ii, 380, ♂ ♀. Ga., Ks., Col.
curvatum Sm. Brit. Mus. Cat. ii, 215, ♀.
simile Cress. Proc. ii, 378, ♂ ♀. Massachusetts, Connecticut.
concinnum Cress. Trans. iv, 270, ♂ ♀. Texas.
texanum Cress. Trans. vii, 113, ♂. Texas.
pudicum Cress. ibid. 208, ♂. Nevada.
pudens Cress. ibid. 208, ♀. Nevada.
parvum Cress. ibid. 114, ♂ ♀. Colorado, Oregon.
Ulkei Cress. ibid. 115, ♂ ♀. Utah, Nevada.
jugaterium Say, (Megachile); Cress. Proc. ii, 380, ♂ ♀. Colorado.
lepidum Cress. Trans. vii, 115, ♂. Georgia.
Gabbii Cress. ibid. 115, ♂. Costa Rica.
mexicanum Cress. ibid. 116, ♂ ♀. Mexico.
porplexum Sm. Brit. Mus. Cat. ii, 214; Cress. Proc. ii, 377, ♂ ♀. Ga., Fla.
notatum Latr; Cress. Proc. ii, 376, ♂ ♀. Mass., N. J., Pa., Del., Ga., Nev.
apicale Cress. Trans. vii, 116, ♂ ♀. Mexico.
bivittatum Cress. ibid. 116, ♂. Mexico.
toltecum Cress. ibid. 117, ♂. Mexico.
agnatum Cress. ibid. 117, ♂. Mexico.
dorsale St. Farg. Hym. ii, 384; Cress. Proc. ii, 381, ♂. Georgia, +.

LITHURGUS Latr.

gibbosus Sm. Brit. Mus. Cat. i, 147, ♀. Florida, Colorado.
compressus Sm. ibid. 147, ♂. Georgia, Texas, Colorado.
apicalis Cress. Wheeler Exp. 1875, v, 724, ♀.

MEGACHILE Latr.

xylocopoides Sm. Brit. Mus. Cat. i, 189, ♂ ♀. Georgia, Florida.
morio Sm. ibid. 189, ♀. United States, +.
carbonaria Cress. Trans. vii, 208, ♀. Nevada.
maura Cress. Proc. iv, 179, ♀. Cuba.
totonaca Cress. Trans. vii, 117, ♀. Mexico.
subnigra Cress. ibid. 208, ♂ ♀. Nevada.
mucida Cress. ibid. 118, ♂ ♀. Georgia.
gemula Cress. ibid. 118, ♂ ♀. North Carolina, Georgia.

melanophæa Sm. Brit. Mus. Cat. i, 191, ♂ ♀. H. B. T., Can., E. M. S. & W. S.
frigida Sm. ibid. 193, ♂ ♀. H. B. T., Can. E. M. S. & W. S.
vidua Sm. ibid. 192, ♀.
latimanus Say, West. Quar. Rep. ii, 81, ♂ ♀. Can. E. M. S. & W. S., Cal. Van.
femorata Sm. Brit. Mus. Cat. i, 188, ♂.
acuta Sm. ibid. 192, ♀.
comata Cress. Trans. iv, 262, ♂. Texas, Colorado.
fortis Cress. ibid. 262, ♂ ♀. Texas, Colorado, Kansas.
Palmeri Cress. Trans. vii, 119, ♂ ♀. Guadalupe Island, Pacific Ocean.
atriceps Cress. Proc. iv, 176, ♀. Cuba.
azteca Cress. Trans. vii, 119, ♂ ♀. Mexico.
Poeyi Guér. Icon. iii, 450; Cress. Proc. iv, 177, ♂ ♀. Cuba.
pollicaris Say, Bost. Jour. i, 406, ♂. Texas.
grandis Cress. Trans. iv, 268, ♀.
Sayi Cress. Trans. vii, 119, ♂ ♀. Del., N. C., Ga., Ks., Tex.
pugnata Say, Bost. Jour. i, 408, ♂ ♀. Can., E. M. S. & W. States, Cala., Nev.
scrobiculata Sm. Brit. Mus. Cat. i, 191, ♂.
disparilis Cress. Trans. iv, 264, ♂.
lucrosa Cress. ibid. 267, ♀.
inimica Cress. ibid. 267, ♀. Georgia, Texas.
fidelis Cress. Trans. vii, 120, ♂ ♀. Colorado, Nevada, California, Oregon.
albitarsis Cress. Trans. iv, 263, ♂ ♀. Texas, Mexico.
mellitarsis Cress. Trans. vii, 121, ♂. Colorado.
integra Cress. ibid. 121, ♂. Texas.
legalis Cress. ibid. 209, ♂. Nevada.
amica Cress. Trans. iv, 265, ♂. Georgia, Texas.
nevadensis Cress. Trans. vii, 209, ♂ ♀. Nevada.
manifesta Cress. ibid. 122, ♂. Colorado, Nevada.
ingenua Cress. ibid. 122, ♂. Georgia, Illinois.
georgica Cress. ibid. 123, ♂ ♀. Georgia.
avara Cress. ibid. 123, ♂. Georgia, Colorado.
otomita Cress. ibid. 123, ♂. Mexico.
singularis Cress. Proc. iv, 177, ♂. (Coll. Gundlach). Cuba.
flavitarsata Sm. Brit. Mus. Cat. i, 183, ♂. St. Vincent, +.
bucephala Sm. ibid. 193, ♂ ♀. Canada, Kansas, Colorado, Utah.
addenda Cress. Trans. vii, 124, ♂ ♀. E. M. S. & W. States.
montivaga Cress. ibid. 124, ♂ ♀. E. M. S. & W. States, Cala., Nev.
pruina Sm. Brit. Mus. Cat. i, 190, ♂ ♀. Georgia, Kansas, Colorado, Texas, Nev.
parallela Sm. ibid. 191, ♂.
facunda Cress. Trans. iv, 266, ♂.
frugalis Cress. ibid. 266, ♂. (Coll. Belfrage). Texas.
deflexa Cress. Trans. vii, 125, ♂. Kansas.
texana Cress. ibid. 125, ♂ ♀. Texas.
generosa Cress. ibid. 125, ♀. North Carolina, Georgia.
pinguis Cress. ibid. 126, ♀. Georgia.
optiva Cress. Trans. iv, 268, ♀. Georgia, Florida, Texas.
mendica Cress. Trans. vii, 126, ♀. Can., E. M. S. & W. States.
relativa Cress. ibid. 126, ♀. Can., N. Y., N. C., Ill., Col., Nev.
centuncularis Linn.; Sm. Brit. Mus. Cat. i, 149. North America, +.
infragilis Cress. Trans. vii, 127, ♂. New York.

petulans Cress. Trans. vii, 127, ♂. North Carolina, Georgia.
nupta Cress. Trans. iv, 268, ♀. Texas.
brevis Say, Bost. Jour. i, 407, ♂ ♀. Can., E. M. S. & W. S., Nev., Cala., Or.
lanuginosa Sm. Brit. Mus. Cat. i, 190, ♂ ♀.
gentilis Cress. Trans. iv, 267, ♂.
perbrevis Cress. Trans. vii, 127, ♂. Texas.
curta Cress. Proc. iv, 178, ♂; Trans. ii, 296, ♀. Cuba.
var. *tibialis* Cress. Trans. ii, 296, ♀.
mexicana Cress. Trans. vii, 127, ♂ ♀. Mexico.
zapoteca Cress. ibid. 128, ♀. Mexico.
tuxtla Cress. ibid. 128, ♂. Mexico.
tepaneca Cress. ibid. 128, ♀. Mexico.
montezuma Cress. ibid. 129, ♂ ♀. Mexico.
toluca Cress. ibid. 129, ♂. Mexico.
Sumichrasti Cress. ibid. 129, ♂. Mexico.
chichimeca Cress. ibid. 130, ♀. Mexico.
œlioxoides Cress. ibid. 130, ♂. Mexico.
zaptlana Cress. ibid. 130, ♀. Mexico.
exilis Cress. Trans. iv, 265, ♂. Middle, Southern and Western States.
studiosa Cress. ib. 269, ♀.
abacula Cress. Trans. vii, 130, ♂ ♀. Mexico.
isucara Cress. ibid. 131, ♂ ♀. Mexico.
armaticeps Cress. Trans. ii, 296, ♀. (Coll. Gundlach). Cuba.
bidentata Sm. Brit. Mus. Cat. i, 190, ♂. Mexico, +.
binotata Guér. Icon. Reg. Anim. 450, ♀. St. Thomas, +.

CERATINA Latr.

eximia Sm. Trans. E. S. Lond. 3d ser. i, 40; Cress. Proc. ii, 391. Mex., Pan.
mexicana Cress. Trans. vii, 131, ♂ ♀. Mexico.
azteca Cress. ibid. 131, ♂ ♀. Mexico.
ignara Cress. ibid. 132, ♀. Mexico.
tejonensis Cress. Proc. ii, 390, ♂. California, Nevada.
dupla Say, Bost. Jour. i, 397; Cress. Proc. ii, 389, ♂ ♀. E. M. S. & W. S., Cala.
læta Spin.; Sm. Trans. Ent. Soc. Lond. 3d ser. i, 40. Panama, +.
placida Sm. ibid. 41. Panama, +.
punctulata Spin.; Sm. ibid. 40. Panama, +.
cobaltina Cress. Trans. vii, 132, ♂. Mexico.
cyaniventris Cress. Proc. iv, 179, ♀. Cuba.

EUCERA Fabr.

maculata St. Farg. Hym. ii, 129, ♀. North America, +.

TETRALONIA Spin.

Gabbii Cress. Proc. Acad. 1878, 220, ♂ ♀. Costa Rica.
apiculata Cress. ibid. 220, ♀. Costa Rica.
fulviventris Sm. Brit. Mus. Cat. ii, 308, ♀. Mexico? +.
cajennensis St. Farg. (Macrocera); Sm. Brit. Mus. Cat. ii, 307, ♂. W. Indies, +.

MELISSODES Latr.

caliginosa Cress. Proc. Acad. 1878, 192, ♂ ♀. Maryland, Georgia.
maura Cress. Proc. iv, 188, ♀. Cuba.
pullata Cress. ibid. 189, ♂ ♀. Cuba.

bimaculata St. Farg. (Macrocera) Ency. Méth. x, 528, ♀. E. M. S. & W. States.
binotata Say, (Macrocera) Bost. Jour. i, 404, ♂ ♀.
nigra St. Farg. (Macrocera) Hym. ii, 112, ♂.
morosa Cress. Proc. Acad. 1878, 193, ♀. Mexico.
montezuma Cress. ibid. 194, ♂ ♀. Mexico.
atrifrons Sm. (Tetralonia) Brit. Mus. Cat. ii, 308, ♀. N. Carolina, Georgia.
nigripes Sm. Brit. Mus. Cat. ii, 311, ♂ ♀. Eastern, Middle & Western States.
despensa Sm. ibid. 310, ♀. Can., E. M. S. & W. States.
atriventris Sm. ibid. 310, ♂.
dubitata Cress. Proc. Acad. 1878, 194, ♂ ♀. Georgia.
nigrifrons Cress. ibid. 195, ♀. California.
Edwardsii Cress. ibid. 195, ♂. California, Nevada.
intrudens = *nevadensis* Cress. Trans. vii, 209, ♂. Nevada.
californica Cress. Proc. Acad. 1878, 196, ♂. California.
fulvitarsis Cress. ibid. 196, ♂. Colorado.
acerba Cress. Trans. vii, 210, ♀. Nevada.
frater Cress. Proc. Acad. 1878, 197, ♂. Colorado.
honesta Cress. Trans. iv, 279, ♂. Texas.
lepida Cress. Proc. Acad. 1878, 198, ♂. Texas, Colorado.
speciosa Cress. ibid. 198, ♀. Colorado.
dilecta Cress. ibid. 199, ♂. Illinois, Texas, Colorado.
Belfragei Cress. Trans. iv, 278, ♀. Texas.
intermedia Cress. ibid. 278, ♀. (Coll. Belfrage). Texas.
nevadensis Cress. Wheeler Exp. 1875. v, 726, pl. 34, fig. 6, ♂. Nevada.
compta Cress. Proc. Acad. 1878, 199, ♂ ♀. Georgia.
atripes Cress. Trans. iv, 275, ♂ ♀. Texas.
georgica Cress. Proc. Acad. 1878, 200, ♂. Georgia.
coloradensis Cress. ibid. 200, ♂ ♀. Colorado.
obliqua Say, (Macrocera) Bost. Jour. i, 403, ♂ ♀. Ga., Ks., Col., Tex.
comanche Cress. Trans. iv, 276. ♂ ♀. Texas.
texana Cress. ibid. 276, ♂ ♀. Texas.
petulca Cress. Proc. Acad. 1878, 201, ♀. Georgia.
montana Cress. ibid. 202, ♂ ♀. Colorado, New Mexico.
suffusa Cress. ibid. 203, ♂ ♀. Texas.
rivalis Cress. Trans. iv, 277, ♂. Texas.
fimbriata Cress. Proc. Acad. 1878, 203, ♂ ♀. Texas.
menuachus Cress. Trans. i, 388, ♂ ♀. Col., Tex., N. Mex., Nev., Or.
agilis Cress. Proc. Acad. 1878, 204, ♂. Texas.
communis Cress. ibid. 204, ♂ ♀. Georgia, Illinois.
confusa Cress. ibid. 205, ♂ ♀. Colorado, New Mexico, Nevada.
perplexa Cress. ibid. 206, ♂ ♀. Georgia, Texas.
rustica Say, (Macrocera) Bost. Jour. i, 406, ♂ ♀. E. M. S. & W. States, Van.
senilis Sm. Brit. Mus. Cat. ii, 311, ♀.
denticulata Sm. ibid. 311, ♂.
manipularis Sm. ibid. 312, ♂. Georgia, +.
condigna Cress. Proc. Acad. 1878, 207, ♀. Illinois, Kansas.
Lanierii Guér. (Macrocera) Icon. iii, 455, pl. 74, fig. 7, ♀. Cuba.
Stretchii Cress. Proc. Acad. 1878, 207, ♀. California.
actuosa Cress. ibid. 208, ♀. California.
donata Cress. ibid. 208, ♀. Mexico.

mimica Cress. Trans. ii, 298, ♂. Cuba.
trifasciata Cress. Proc. Acad. 1878, 208, ♀. Porto Rico.
albilabris Cress. ibid. 209, ♂. Mexico.
otomita Cress. ibid. 209, ♂. Mexico.
tepida Cress. ibid. 210, ♀. Nevada.
suavis Cress. ibid. 210, ♀. Colorado.
lupina Cress. ibid. 210, ♂. California.
Snowii Cress. ibid. 211, ♂. Colorado.
albata Cress. Trans. iv, 281, ♂ ♀. Texas.
pensylvanica St. Farg. (Macrocera) Hym. ii, 97, ♂. Pennsylvania, +.
americana St. Farg. (Macrocera) Hym. ii, 92, ♂. Carolina, +.
tepaneca Cress. Proc. Acad. 1878, 211, ♂ ♀. Mexico.
spissa Cress. Trans. iv, 280, ♂ ♀. Texas.
aurigenia Cress. Proc. Acad. 1878, 212, ♂ ♀. Can., E. M. S. & W. States, Nev.
dentiventris Sm. Brit. Mus. Cat. ii, 312, ♂ ♀. Canada, New York, Georgia.
rufodentata Sm. ibid. 314, ♂. St. Vincent, +.
fulvohirta Cress. Proc. Acad. 1878, 213, ♂. Georgia.
exquisita Cress. ibid. 213, ♀. Mexico.
intorta Cress. Trans. iv, 278, ♂. Texas.
pruinosa Say, (Macrocera) Bost. Jour. i, 405, ♂ ♀. E. M. S. & W. States.
philadelphica St. Farg. (Macrocera), Hym. ii, 110, ♂.
strenua Cress. Proc. Acad. 1878, 213, ♂ ♀. Georgia, Texas, New Mexico.
brevicornis Cress. Trans. iv, 281, ♂. Texas.
australis Cress. Proc. Acad. 1878, 214, ♂ ♀. Colorado, Texas.
enavata Cress. Trans. iv, 280, ♀. Kansas, Texas.
ursina Cress. ibid. 281, ♂. Texas.
densa Cress. ibid. 282, ♂. Kansas, Utah, Texas.
diminuta Cress. Proc. Acad. 1878, 215, ♂. Colorado.
olivacea Cress. ibid. 216, ♂ ♀. Mexico, California.
pinguis Cress. ibid. 216, ♂ ♀. Mexico.
pygmæa Cress. Trans. iv, 279, ♂ ♀. Texas.
afflicta Cress. Proc. Acad. 1878, 217, ♂ ♀. Texas.
apacha Cress. ibid. 217, ♀. Texas, New Mexico, Arizona.
Sumichrastii Cress. ibid. 218, ♂ ♀. Mexico.
bituberculata Cress. ibid. 218, ♂. California, Nevada.
taurea Say, (Anthophora) Bost. Jour. i, 410, ♂ ♀. Va., Ga., Ky., Mo.
fulvifrons Sm. (Anthophora), Brit. Mus. Cat. ii, 341, ♀. Texas, Mexico.
marginella Cress. Trans. iv, 282, ♂ ♀.
toluca Cress. Proc. Acad. 1878, 219, ♂ ♀. Mexico.
bombiformis Cress. ibid. 219, ♂ ♀. Virginia, Georgia, Kansas.

XENOGLOSSA Smith.

fulva Sm. Brit. Mus. Cat. ii, 315, ♂ ♀. Arizona, Mexico.
Anthophora holopyrrha Dours, Mém. Soc. Linn. ii, 89.

ANTHOPHORA Latr.

carbonaria Cress. Trans. vii, 210, ♀. Nevada.
atrata Cress. Proc. iv, 189, ♂. Cuba.
pernigra Cress. Trans. vii, 210, ♀. Nevada.
fuscipennis Sm. Brit. Mus. Cat. ii, 338, ♀. North America, +.
tricolor St. Farg. Hym. ii, 86, ♂. West Indies.

Krugii Cress. Proc. Acad. 1878, 188, ♂ ♀. Porto Rico.
Smithii Cress. Trans. ii, 289, ♂ ♀. Texas, Colorado, Dakota, New Mexico.
Walshii Cress. ibid. 290, ♂ ♀. Illinois.
marginata Sm. Brit. Mus. Cat. ii, 339, ♀. Mexico.
texana Cress. Trans. iv, 282, ♀. Texas.
californica Cress. Trans. ii, 290, ♂ ♀. California.
capistrata Cress. Proc. Acad. 1878, 187, ♂. Texas.
urbana Cress. ibid. 188, ♂ ♀. Colorado, Utah, Nev., Cala.
affabilis Cress. ibid. 189, ♂ ♀. Texas.
montana Cress. Trans. ii, 290, ♀. Colorado.
terminalis Cress. ibid. 292, ♂ ♀. Eastern, Middle, Western States, Van.
ursina Cress. ibid. 291, ♂. West Virginia, North Carolina.
simillima Cress. Proc. Acad. 1878, 189, ♂. Colorado, Nevada.
pacifica Cress. ibid. 190, ♂. California, Nevada.
ignava Cress. Trans. vii, 210, ♂ ♀. Nevada.
Edwardsii Cress. Proc. Acad. 1878, 190, ♂ ♀. Nevada, California.
mucida Cress. ibid. 191, ♀. Colorado.
miserabilis Cress. ibid. 191, ♂. California, Nevada.
albata Cress. Proc. Dav. Acad. Nat. Sci. i, 211, ♂ ♀. Colorado.
maculifrons Cress. Trans. vii, 210, ♂ ♀. Nevada.
flexipes Cress. ibid. 211, ♂ ♀. Nevada.
exigua Cress. ibid. 211, ♂ ♀. Nevada.
occidentalis Cress. Trans. ii, 292, ♂ ♀. Colorado, Texas.
bomboides Kirby, Faun. Bor. Am. iv, 271, ♂ ♀. Can., E. M. S. & W. States.
var. *canadensis* Cress. Trans. ii, 292, ♂.
sodalis Cress. Trans. vii, 212, ♂. Nevada.
centriformis Cress. ibid. 212, ♂. Nevada.
abrupta Say, Bost. Jour. i, 409, ♂ ♀. Can., E. M. S. & W. States.
sponsa Sm. Brit. Mus. Cat. ii, 339, ♀.
floridana Sm. Brit. Mus. Cat. ii, 339, ♂ ♀. Pa., Ill., Ga., Fla., Cala.
frontata Say, Bost. Jour. i, 409, ♂. Louisiana, +.
Morrisoni Cress. Proc. Acad. 1878, 192, ♂. Colorado.
Crotchii Cress. ibid. 192, ♂. California.
squammulosa Dours, Mém. Soc. Linn. ii, 78. Mexico, +.
melanopyrrha Dours, ibid. 90. Mexico, +.
aurulento-caudata Dours, ibid. 92. Mexico, +.
citreo-strigata Dours, ibid. 95. North America, +.
pluto Dours, ibid. 95. Mexico, +.
badia Dours, ibid. 107. Mexico, +.
rufozonana Dours, ibid. 112. Mexico, +.
Godofredi Dours, ibid. 119. St. Vincent, +.
mexicana Dours, ibid. 133. Mexico, +.
tarsata Dours, ibid. 147. Mexico, +.
pygmea Dours, ibid. 151. Mexico, +.
pyralitarsis Dours, ibid. 160. New York, +.
volucellæ-formis Dours, ibid. 189. Mexico, +.
pulsella Dours, ibid. 190. Mexico, +.
histrio Dours, ibid. 190. Mexico, +.
unistrigata Dours, ibid. 192. Mexico, +.
luteo-dimidiata Dours, ibid. 192. Mexico, +.

bidentata Fab. (Andrena), Ent. Syst. ii, 313; Syst. Piez. 381. N. America, +.
domingensis St. Farg. Hym. ii, 32. St. Domingo, +.
disjuncta Fabr. (Apis); Kirby, Illig. Mag. v, 114. West Indies, +.
holosericea Fabr. (Apis); Kirby, ibid. 113. West Indies, +.

XYLOCOPA Latr.

morio Fabr.; Sm. Trans. Ent. Soc. Lond. 1874, 285, ♀. Mexico, Nicaragua.
fimbriata Fabr.; Sm. ibid. 284, ♂ ♀. Mexico, West Indies.
æneipennis De Geer; Sm. ibid. 285, ♀. L. California, Mexico.
cubæcola Lucas; Sm. ibid. 297, ♂ ♀. Cuba.
colona St. Farg.; Sm. ibid. 287, ♀. Barbadoes, +.
mordax Sm. ibid. 294, ♀. West Indies, +.
orpifex Sm. ibid. 298, ♂ ♀. California, Nevada.
loripes Sm. ibid. 298, ♂. Mexico, +.
splendidula St. Farg.; Sm. ibid. 288, ♀. Nicaragua, +.
grossa Drury; Sm. ibid. 281, ♂ ♀. West Indies, +.
arizonensis Cress. Trans. vii, 212, ♂ ♀. Arizona.
californica Cress. Proc. iii, 40, ♂ ♀. California, Nevada.
tenuata Sm. Trans. Ent. Soc. Lond. 1874, 299, ♀. Mexico, +.
formosa Sm. ibid. 299, ♀. Mexico, +.
barbata Fabr.; Sm. ibid. 282, ♂ ♀. Mexico.
purpurea Cress. Trans. iv, 284, ♀. Texas.
lateralis Say, Bost. Jour. i, 413, ♂. Mexico, +.
micans St. Farg.; Sm. Trans. Ent. Soc. Lond. 1874, 297, ♂ ♀. Georgia, Florida.
vidua St. Farg. Hym. ii, 210, ♀.
cyanea Sm. Trans. Ent. Soc. Lond. 1874, 296, ♂. Mexico, +.
virginica Drury; Cress. Proc. ii, 90; Sm. ibid. 295, ♂ ♀. M. S. & W. States.
Apis griseocollis De Geer. Mém. Ins. iii, 576, ♂.
texana Cress. Trans. iv, 283; Sm. Trans. Ent. Soc. Lond. 1874, 295, ♂ ♀. Texas.
tabaniformis Sm. Brit. Mus. Cat. ii, 362; ibid. 296, ♂ ♀. Mexico.
azteca Cress. Trans. vii, 133, ♀. Mexico.
subvirescens Cress. id. 213, ♂ ♀. Mexico.
anthophoroides Sm. Trans. Ent. Soc. Lond. 1874, 289, ♀. Mexico, +.
caribea St. Farg. Hym. ii, 202, ♂. Guadeloupe, +.

EXOMALOPSIS Spin.

pulchella Cress. Proc. iv, 191, ♂ ♀. Cuba.
similis Cress. ibid. 191, ♀; Trans. ii, 298, ♂. Cuba.
pubescens Cress. ibid. 192, ♂. Cuba.
limata Cress. Trans. vii, 133, ♀. Mexico.
mexicana Cress. ibid. 133, ♀. Mexico.
otomita Cress. ibid. 133, ♀. Mexico.
tepaneca Cress. ibid. 134, ♀. Mexico.
? **mellipes** Cress. ibid. 134, ♀. Mexico.

TETRAPEDIA Klug.

maura Cress. Trans. vii, 134, ♂ ♀. Mexico.
lugubris Cress. ibid. 135, ♂. Mexico.
mœsta Cress. ibid. 135, ♂ ♀. Mexico.
apicalis Cress. ibid. 136, ♀. Mexico.
terminalis Cress. ibid. 136, ♀. Mexico.
fraterna Cress. ibid. 136, ♂. Mexico.

atripes Sm. Brit. Mus. Cat. ii, 366, ♀. Mexico, +.
calcarata Cress. Trans. vii, 136, ♂ ♀. Mexico.
abdominalis Cress. Proc. Acad. 1873, 182, ♂ ♀. Mexico.

EPICHARIS Klug.

elegans Sm. Jour. Ent. i, 152; Ann. Mag. ser. 4, xiii, 319, ♂ ♀. Mexico.
maculata Sm. Ann. Mag. N. H. ser. 4, xiii, 320, ♀. Mexico, +.

CENTRIS Fabr.

aterrima Sm. Brit. Mus. Cat. ii, 378, ♂. Mexico, +.
æthiops Cress. Proc. iv, 193, ♀. Cuba.
nigrocærulea Sm. Ann. Mag. N. H. ser. 4, xiii, 369, ♂ ♀. Mexico, +.
elegans Sm. ibid. 372, ♀. St. Vincent, +.
crassipes Sm. ibid. 372, ♂. Jamaica, +.
armillatus Cress. Trans. ii, 298, ♂. (Coll. Gundlach). Cuba.
mexicana Sm. Brit. Mus. Cat. ii, 378, ♀. Mexico, +.
lanosa Cress. Trans. iv, 284, ♂. Texas.
thoracica Sm. Ann. Mag. N. H. ser. 4, xiii, 370, ♀. St. Domingo, +.
hæmorrhoidalis Fabr. Syst. Piez. 359, ♂; St. Farg. Hym. ii, 155, ♀. W. Indies.
melanchlæna Sm. Ann. Mag. N. H. ser. 4, xiii, 360, ♂. Mexico, +.
ignita Sm. ibid. 362. Mexico, +.
nitida Sm. ibid. 368, ♀. Honduras, +.
flavifrons Fab. (Anthophora); St. Farg. Hym. ii, 152, ♂ ♀. Mexico.
apicalis Guér.; Cress. Proc. iv, 193, ♂ ♀. Cuba.
pœcila St. Farg. Hym. ii, 154, ♀.
versicolor Fabr.; Sm. Ann. Mag. N. H. ser. 4, xiii, 364, ♂ ♀. Mex., W. Indies.
Smithii = *apicalis* Sm. (nec. Guér.) ibid. 367, ♀. St. Barth., W. Ind., +.
insularis Sm. Ann. Mag. N. H. ser. 4, xiii, 367, ♀. St. Domingo, +.
cornuta Cress. Proc. iv, 194, ♀. (Coll. Gundlach). Cuba.
maculifrons Sm. B. M. C. ii, 372; Ann. Mag. ser. 4, xiii, 363, ♀. Mexico, +.
fasciata Sm. ibid. 377, ♂ ♀. Jamaica, +.
montezuma Cress. Trans. vii, 213, ♂ ♀. Mexico.
decolorata St. Farg.; Sm. Ann. Mag. N. H. ser. 4, xiii, 364, ♂. Mex., W. Ind., +.
agilis Sm. ibid. 361, ♂. Mexico, +.
difformis Sm. Brit. Mus. Cat. ii, 374; ibid. 364, ♀. Mexico, +.
testacea St. Farg.; Sm. ibid. 365, ♀. St. Domingo, +.
totonaca Cress. Trans. vii, 213, ♀. Mexico.
fulviventris Cress. Proc. iv, 193, ♀. Mexico, West Indies.
dentipes Sm. Ann. Mag. N. H. ser. 4, xiii, 366, ♂.
otomita Cress. Trans. vii, 214, ♂. Mexico.
simillima Sm. Ann. Mag. N. H. ser. 4, xiii, 370, ♀. St. Domingo, +.

EULEMA St. Farg.

dimidiata Fabr.; Sm. Ann. Mag. N. H. ser. 4, xiii, 441, ♂ ♀. Mexico.
cajennensis St. Farg. Hym. ii, 14, ♂. Mexico, Honduras.
fasciata St. Farg.; Sm. Ann. Mag. N. H. ser. 4, xiii, 442, ♂ ♀.
terminata Sm. ibid. 442, ♂. Trinidad, +.
surinamensis Linn.; Sm. ibid. 442. Mexico.

EUGLOSSA Latr.

cordata Linn.; Sm. Ann. Mag. N. H. ser. 4, xiii, 443, ♂ ♀. Mex., Pan., Jam.
piliventris Guér. Icon. Règ. Anim. iii, 458, ♂ ♀. West Indies.

ignita Sm. Ann. Mag. N. H. ser. 4, xiii, 444, ♂. Jamaica, +.
smaragdina Perty; Guér. Icon. Règ. Anim. iii, 458. Bay of Campeche, +.
cærulescens St. Farg.; Sm. Ann. Mag. N. H. ser. 4, xiii, 445, ♂ ♀. Mexico, +.

APATHUS Newman.

variabilis Cress. Trans. iv, 284, ♂ ♀. Texas.
intrudens Sm.; Cress. Proc. ii, 111, ♀. Mexico, Central America.
laboriosus Fab.; Cress. ibid. 111, ♀. Canada, West Virginia.
Ashtoni Cress. Proc. iii, 42, ♂ ♀. Canada, Eastern and Middle States.
insularis Sm.; Cress. Proc. ii, 113, ♂ ♀. Colorado, Vancouver.
citrinus Sm.; Cress. ibid. 112, ♂. Ct., Pa., Del., Ill.
var. *contiguus* Cress. ibid. 112, ♂.
fraternus Sm.; Cress. ibid. 111, ♂. North America, +.
? **californica** Cress. Trans. vii, 214, ♂. California.
? **elatus** Fabr.; Cress. Proc. ii, 114, ♂. M. S. & W. States.
var. *nidulans* Fab.; Cress. Proc. ii, 107, ♂.

BOMBUS Latr.

virginicus Oliv.; Cress. Proc. ii, 87, 166, ♂ ♀ ☿. Can., E. M. S. & W. States.
impatiens Harris; Cress. ibid. 90, ♂.
separatus Cress. Proc. ii, 165, ♂ ♀ ☿. Can., E. M. S. & W. States.
Ridingsii Cress. Proc. Acad. 1878, 182, ♂ ♀ ☿. Can., E. M. & S. States.
vagans Sm. B. M. C. ii, 399; Cress. Proc. ii, 91. Can., E. M. S. & W. States.
consimilis Cress. Proc. iii, 41. Can., E. M. S. & W. States.
affinis Cress. Proc. ii, 103, ♂ ♀ ☿. Can., E. M. S. & W. States.
perplexus Cress. Proc. iii, 91, ♂. H. B. Ter., E. M. & S. States, Nevada.
var. *hudsonicus* Cress. Proc. ii, 92, ♂.
oregonensis Cress. Proc. Acad. 1878, 185, ♂. Oregon.
bimaculatus Cress. Proc. ii, 92, ♂. Massachusetts, Connecticut.
Morrisoni Cress. Proc. Acad. 1878, 183, ♂ ♀ ☿. Colorado, N. Mexico, Nevada.
nevadensis Cress. Wheeler Exp. 1875, v. 728, pl. 34, fig. 5, ♀ ☿. Col. Ariz. Nev. Cal.
appositus Cress. Proc. Acad. 1878, 183, ♂ ♀ ☿. Colorado, N. Mexico, Nevada.
borealis Kirby; Cress. Proc. ii, 93; iii. 41, ♂ ♀ ☿. Can., N. H., W. Va.
fervidus Fab. (Apis); Cress. id. 93, ♀ ☿. Can., E. M. S. & W. S., Nev., Cala.
var. *dorsalis* Cress. ♀. Thorax above entirely yellow.
sonorus Say, Bost. Jour. i, 413; Cress. Proc. ii, 95, ♀ ☿. Mexico.
pennsylvanicus De Geer, (Apis); Cress. ibid. 94, ♂ ♀ ☿. Can., E. M. S. & W. S.
var. *americanorum* Fab. Syst. Ent. 380; Syst. Piez. 346.
var. *pallidus* Cress. Proc. ii. 92, ♀.
improbus Cress. Proc. Acad. 1878, 186, ♂. Colorado.
terricola Kirby; Cress. Proc. ii, 99, ♂ ♀ ☿. Can., E. & M. States.
arcticus Kirby; Cress. ibid. 95, ♂ ♀. Arctic America, +.
pleuralis Nyl.; Cress. ibid. 96, ♂ ♀. Sitka, +.
scutellaris Cress. ibid. 96, ♂ ♀ ☿. Florida, Texas, Kansas.
grœnlandicus Sm. Brit. Mus. Cat. ii, 393; Cress. Proc. ii, 97, ♀. Greenland, +.
medius Cress. Proc. ii, 97, ♂ ♀ ☿. Mexico, Utah?
californicus Sm. B. M. C. ii, 400; Cress. Proc. ii, 97, ♂ ♀ ☿. Nev., Cala., Or.
dubius Cress. Proc. ii, 97, ♀ ☿. Kansas, Colorado.
occidentalis Greene; Cress. Proc. ii, 98, ♂ ♀ ☿. Nev., Cala., Or., W. Ter., Van.
modestus Sm. Jour. Ent. i, 153; Cress. Proc. ii, 109, ♀ ☿. Mexico.
moderatus Cress. (*modestus*), Proc. ii, 99, 109, ♀. Alaska.

Edwardsii Cress. Proc. Acad. 1878, 184, ♂ ♀ ☿. Col., Nev., Cala., Van.
hortorum Linn.; Sm. Entom. Annual, 1857, 30. Lake Winnepeg, +.
Howardii Cress. Proc. ii, 99, ♂ ♀ ☿.. Utah, Colorado, California.
var. *proximus* Cress. Proc. ii, 98, ☿.
Crotchii Cress. Proc. Acad. 1878, 184, ♀. California.
Couperi Cress. ibid. 185, ♀. Canada.
Putnami Cress. ibid. 185, ♀. Colorado.
gelidus Cress. ibid. 184, ♀. Aleutian Islands.
Kirbiellus Curtis; Cress. Proc. ii, 101, ♂ ♀ ☿. Arctic America, +.
frigidus Sm. Brit. Mus. Cat. ii, 399; Cress. Proc. ii, 100, ♂ ♀ ☿. Col., Van.
Carriei Greene, Ann. Lyc. Nat. Hist. vii, 170.
polaris Curtis; Cress. Proc. ii, 101, ♂ ♀. Arctic America, +.
strenuus Cress. ibid. 102, ♂ ♀. Hudson's Bay Territory.
sitkensis Nyl.; Cress. ibid. 102, ♂ ♀ ☿. Sitka, +.
melanopyge Nyl.; Cress. ibid. 103. Sitka, +.
lacustris Cress. ibid. 103, ♂ ♀ ☿. H. B. Ter., Van., Greenland.
ornatus Sm. Brit. Mus. Cat. ii, 398; Cress. Proc. ii, 104, ♀. N. America, +.
ternarius Say, Bost. Jour. i, 414; Cress. Proc. ii, 104, ♂ ♀ ☿. Can., E. M. & W. S.
Huntii Greene, Ann. Lyc. Nat. Hist. vii, 172.
bifarius Cress. Proc. Acad. 1878, 185, ♂ ♀ ☿. Col., Van., Brit. Col.
centralis Cress. Proc. iii, 41, ♀ ☿. Colorado, California.
flavifrons Cress. Proc. ii, 105, ♂ ♀ ☿. Alaska, Utah, Colorado.
praticola Kirby, Faun. Bor. Am. iv, 274; Cress. Proc. ii, 106, ♀. Brit. Am.
sylvicola Kirby; Cress. Proc. ii, 106, ♀. Canada, Colorado, Alaska.
juxtus Cress. Proc. Acad. 1878, 187, ♀ ☿. Colorado, Nevada.
mixtus Cress. ibid. 186, ♀ ☿. Colorado.
rufocinctus Cress. Proc. ii, 106, ♂ ♀. Colorado.
vancouverensis Cress. Proc. Acad. 1878, 187, ♂. Vancouver's Island.
antiguensis Fab. (Apis); Cress. Proc. ii, 107. Antigua, +.
laboriosus Sm. Jour. Ent. i, 153; Cress. Proc. ii, 109, ♀ ☿. Mexico, +.
ephippiatus Say, Bost. Jour. i, 414; Cress. ibid. 107, ☿. Mexico.
pulcher Cress. Proc. ii, 108, ♀. Mexico.
carolinus Linn. (Apis); Cress. Proc. ii, 108. North America, +.
mexicanus Cress. Proc. Acad. 1878, 187, ♀ ☿. Mexico.
diligens Sm. Jour. Ent. i, 154; Cress. Proc. ii, 110, ♀. Mexico.
Derhamellus Kirby, Faun. Bor. Am. iv, 273. Arctic America, +.
violaceus St. Farg. Hym. i, 473; Cress. Proc. ii, 108, ♀. St. Thomas.

MELIPONA Latr.

fulvipes Guér.; Cress. Proc. iv, 195, ♂ ♀ ☿. Cuba.
fasciata Latr. Magazin der Entomologie, i, 115. Mexico, +.
ligata Say, (Trigona) Bost. Jour. i, 415. Mexico.

TRIGONA Jurine.

nigerrima Cress. Proc. Acad. 1878, 181, ☿. Mexico.
nigra Cress. ibid. 181, ☿. Mexico.
bilineata Say, Bost. Jour. i, 414, ☿. Mexico.
perilampoides Cress. Proc. Acad. 1878, 181, ☿. Mexico.
bipartita St. Farg. Hym. i, 432, ☿. Mexico.
thoracica Cress. Proc. Acad. 1878, 181, ☿. Mexico.
fulviventris Guér. Icon. Règ. Anim. iii, 464. Mexico, +.

fulvipeda Guér. Icon. Règ. Anim. iii, 461, pl. 75, fig. 5. Cuba, +.
laboriosa Sm. Trans. Ent. Soc. Lond. ser. 3, i, 42. Panama, +.
mellarius Sm. ibid. 42. Panama, +.
mexicana Guér. Icon. Règ. Anim. iii, 464. Mexico, +.
amalthea Fabr. (Apis); Sm. Trans. Ent. Soc. Lond. ser. 3, i, 41. Panama, +.

APIS Linn.

mellifica Linn.; Sm. Brit. Mus. Cat. ii, 414, ♂ ♀ ☿. North America.

Abbreviations used in References.

CRESS. PROC.—Cresson, Proceedings Entomological Society of Philadelphia.
" PROC. ACAD.—Proceedings Academy of Natural Sciences, Philadelphia.
" PROC. DAV. ACAD.—Proceedings Davenport Academy of Natural Sciences.
" TRANS.—Transactions American Entomological Society.
" WHEELER EXP.—Wheeler Explorations and Surveys west of 100th. Meridian, 1875.
DE GEER, MEM. INS.—Mémoires des Insectes.
DOURS, MEM. SOC. LINN.—Mémoires Société Linnéenne due Nord de la France.
EVERSM.—Eversmann.
FABR. ENT. SYST.—Fabricius, Entomologia Systematica.
" SYST. ENT.—Systema Entomologiæ.
" SYST. PIEZ.—Systema Piezatorium.
GUER. ICON. REG. AN.—Guérin Iconographie due Règne Animal.
GREENE, ANN. LYC. NAT. HIST.—Annals New York Lyceum of Natural History.
KBY. FAUN. BOR. AM.—Kirby, Fauna Boreali-Americana.
" ILLIG. MAG.—Illiger's Magazin.
LATR.—Latrielle.
LINN.—Linnæus.
NYL.—Nyllander.
OLIV.—Olivier.
SAY, BOST. JOUR.—Boston Journal of Natural History.
" LONG'S 2d. EXP.—Long's Second Expedition.
" WEST. QUAR. REP.—Western Quarterly Reporter.
SCH.—Schæffer.
SM. ANN. MAG. N. H.—Smith, Annals and Magazine of Natural History.
" B. M. C. or BRIT. MUS. CAT.—British Museum Catalogues, Hymenoptera.
" ENTOM. ANNUAL.—Entomologist's Annual.
" JOUR. ENT.—Journal of Entomology.
" TRANS. ENT. SOC. LOND.—Transactions Entomological Society of London.
SPIN.—Spinola.
ST. FARG.—Lepelletier de Saint Fargeau.
" ENCY. METH.—Encyclopédie Méthodique.
" HYM.—Hyménoptères, (Suites à Buffon).

On the CHRYSIDES of North America.

BY EDWARD NORTON.

Table to assist in determining the genera.

Abdomen convex above, beneath plane or concave; space between the eyes wide, only partly hidden by the first two joints of antennæ; mouth not lengthened.

Anterior border of third abdominal segment without an inner series of pits.

The apical margin always more or less deeply notched; tarsal claws serrate or pectinate within.....ELAMPUS.

The apical margin always rounded or merely sinuate.

Tarsal claws with several inner teeth.....HOLOPYGA.

Tarsal claws with one inner tooth.....HEDYCHRUM.

Anterior border of third abdominal segment preceded by a series of pits disposed in an arc of a circle. Nails of tarsi simple.....CHRYSIS.

ELAMPUS Spin.

Apical margin of third abdominal segment with an incision more or less narrow and triangular.—(*Omalus*, Panz., Dahlb.).

A.—Emargination of third segment narrow, its membranous edges not turned up.

Postscutellum rounded and but slightly elevated.

Lateral margins of third segment not sinuate.

Claws pectinate; mesothorax and scutel punctured, tergum polished, having sparse minute punctures.....**simnosum.**

Lateral margins of third segment unisinuate.

Claws with two inner teeth.

Mesothorax and anterior half of scutel and tergum polished, without punctures; punctured area below postscutel extended as far as the side foveolæ.....**iridescens.**

Mesothorax and anterior third of scutel polished, with large, sparse, subobsolete punctures; tergum polished, with minute punctures; punctured area below postscutel wider than long, not extending as far as side foveolæ.....**læviventris.**

Claws with four or five teeth.

Mesothorax, scutel and tergum as above; prothorax with obsolete punctures; punctured area below postscutel extending as far as the side foveolæ.....**coruscans.**

Postscutellum mucronate.

Lateral margins of third segment bisinuate, its sides pinched.

Claws with three inner teeth.

Mesothorax and anterior third of scutel polished, but with large sparse pits; apical segment of tergum with large, subobsolete punctures.....**speculum.**

B.—Emarginations of third segment wider, edges of its semicircle turned up.—(*Elampus*).

Postscutellum mucronate.

Claws with three inner processes.

Tergum roughened, without distinct punctures; wings hyaline. **versicolor.**

Claws with about four inner pectinations.

Tergum covered with small punctures; apical two-thirds of wings obscure ..... **viridicyaneus.**

Elampus sinuosum.

Hedychrum sinuosum Say, Macl. Lyc. i, 1828, 82.

Hedychrum Janus Hald., Proc. Acad. Nat. Sci. ii, 55.

Hab.—Mass., Penn., Ill., (Coll. Am. Ent. Soc.); Iowa, (Say). The color is almost entirely bright purple-violet, with the face, sides and most part of legs blue-green.

Elampus iridescens n. sp.—♂.—Color of face and the two basal joints of antennæ green; occiput, prothorax and tergum, with purple reflections; remainder of thorax and legs cyaneous; tarsi luteous; wings hyaline, with the apical half of upper pair obscure; occiput, pro- and mesothorax, apical half of scutel, and tergum, polished, without punctures; basin of face and the outer orbits with delicate cross striæ; area below postscutel punctured, semicircular, wider than deep, its lower middle narrowly prolonged to the junction of the side foveolæ on the central metathoracic ridge; margin of third segment of tergum with a deep angulate incision, above which extends a transparent, slightly notched membrane; sides rather unisinuate; spurs of anterior tibiæ not pectinate. Length .15 inch.

Hab.—Conn., Penn., (Coll. Am. Ent. Soc.) Four specimens.

Elampus læviventris.

Omalus lævicentris Cresson, Proc. Ent. Soc. Phil. iv, 1865, 303, ♀.

Hab.—Colorado, (Coll. Am. Ent. Soc.)

Elampus coruscans n. sp.—♀.—Color blue-green, with purple reflections above, greenish beneath; wings hyaline, their apical third obscure; occiput, pro- and mesothorax and apical third of scutellum, polished and covered with large subobsolete punctures; tergum polished, having minute sparse punctures, which are larger and sub-effaced on the sides; basin of face polished; the punctured area below postscutel produced angularly as far as the side foveola; sides of margin of third segment of tergum unisinuate, slightly pinched; claws pectinate with about five distinct teeth. Length .14—.25 inch.

Hab.—Can., Conn., (Coll. Am. Ent. Soc.) Two specimens.

Elampus speculum.

Hedychrum speculum Say, Bost. Jour. i, 1835. 285, 2, ♂.

Hab.—Illinois, (Coll. Am. Ent. Soc.) Color almost wholly bright green. Although the edges of the apical membrane are not turned

up, this doubtless belongs to the division *Elampus* of authors. The postscutel is elevated into a cone, with two punctures on the summit. The sides of the abdomen are pinched, sinuate.

Elampus versicolor n. sp.—♂.—Color green varying to blue in different lights, tarsi yellow; wings almost hyaline, their apical third faintly clouded; basin of face wide and with bent cross striæ; punctures on occiput and prothorax nearly as large and abundant as elsewhere; postscutel elevated into a large, flattened, punctured spine; tergum roughened, but with no distinct punctures; basin at the base of first segment wide, shallow, with a little tooth on each side; apical segment much pinched at sides, its turned up apical membrane yellowish; claws with three inner processes. Length .18 inch.

Hab.—Dacota, (Coll. Am. Ent. Soc.) One specimen.

Elampus viridicyaneus n. sp.—♀.—Color green, with the occiput, middle of thorax and of tergum violaceous; wings hyaline, with the apical half of upper pair obscure; basin of face wide, touching eyes and with cross striæ; postscutel produced into a flattened spine; basin of first segment of tergum shallow, wide, with a little tooth on each side; first and second segments covered with small distinct punctures, larger on sides and on third segment; sides of third segment pinched, notch rather large, lateral margin bisinuate; claws with four inner processes. Length .18 inch.

Hab.—Massachusetts, (Coll. Am. Ent. Soc.) One specimen.

Elampus viridis Cresson, Proc. Ent. Soc. Phil. iv, 1865, 103.

Hab.—Cuba, (Coll. Am. Ent. Soc.) Basin of face not striate; the occiput and prothorax shining, with subobsolete punctures; the postscutel produced, flattened, subtruncate; the first and second segments of tergum with fine, separated punctures, the third segment roughened; claws without apparent teeth.

HOLOPYGA Dahlb.

Dahlbom classes this genus with his Elampidæ, on account of its three toothed mandibles and its pectinate claws. Externally it presents exactly the same appearance as *Hedychrum*.

Holopyga ventralis.

Hedychrum ventrale Say, Long's 2d Exp. App. 330, 1, 1824.
Holopyga Dohrni Dahlb., Hym. Eur. ii, 48, 24, 1854.
Holopyga compacta Cresson, Proc. Ent. Soc. Phil. iv, 304.

Hab.—N. Y., N. J., Del., Ill., Cuba, (Coll. Am. Ent. Soc.) Numerous specimens, all females.

Specimens vary much in color, some being mostly green, and some greenish-blue, with purplish bands on the tergum when it is much bent. The apex of the third abdominal segment has a wide shallow

notch in the middle, with a very obtuse angulation on each side. The basin of face has cross striæ; basin of first segment of tergum polished, punctures of first and second segments of two sizes, separated, more dense and equal on the third segment. The wing scale is purplish. The first tarsal joint green or with greenish reflections above; claws with three or four inner teeth. Wings sometimes obscure, but generally with a well defined obscure apical half.

HEDYCHRUM Latr.

Mandibles at the apex bidentate; apical tooth curved, narrow; inner tooth very short, broad, not deeply notched. Head often concave behind, fitting closely upon the prothorax; summit of the basin of face without cross carina; external angles of the face very acute, not preceded by a fissure as in *Chrysis*. Claws of the tarsi bifid or with one inner tooth.

The males show three ventral segments, the females generally show a narrow fourth segment connected with the oviduct. The hinder femora of the males are often thickly covered before with whitish pile.

Tabular synopsis of the species.

A punctured area between the postscutellum and the dividing ridge of the metathorax.
- Claws bifid or with a strong inner tooth near the tip.
  - Basin of face polished at sides and summit, with cross striæ in the middle.
    - Pro- and mesothorax and tergum polished, punctures minute, sparse.
      - Back of the head concave, its upper edge acute, fitting closely to the thorax ..... **obsoletum.**
  - Basin of face with cross striæ.
    - Pro- and mesothorax punctured.
      - Tergum polished, punctures moderate, separated, base and apex of each segment smooth; back of head not concave ..... **Willii.**
      - Tergum closely punctured, back of head concave, fitting closely to thorax.
        - Thorax brightly cupreous above ..... **cupricolle.**
        - Thorax green and violet above.
          - Apical segment not emarginate ..... **vernale.**
          - Apical segment emarginate ..... **cyaniventre.**
- Claws with a feeble inner tooth.
  - Basin of face punctured at sides, striate across the middle.
    - Tergum thickly covered with moderate punctures, margin of the third abdominal segment lightly sinuate, neither notched nor angulate ..... **dimidiatum.**
  - Basin of face punctured, a slender polished space down the middle.
    - Tergum polished, punctures minute, scattered; third abdominal segment pinched at sides, margin subconical ..... **viride.**

Postscutellum connecting abruptly with the short dividing ridge of the metathorax.
  Claws with a strong inner tooth.
    Basin of face striate.
      Apex of third abdominal segment lightly notched, obtusely angulate at sides, sinuous at base.
        Three basal joints of antennæ green.....**Cressoni.**
        Basal joint of antennæ green.
          Tergum polished, punctures moderate, numerous, separated; head narrower than thorax.....**Louisianiæ.**
      Apex of third segment not emarginate, sides obtusely angulate.
        Two basal joints of antennæ green.
          Punctures of 3rd segment scarcely larger than 2nd.....**violaceum.**
          Punctures of apex of second and surface of third segments large, surface rugose.....**asperum.**
  Claws with a feeble inner tooth.
    Basin of face punctured, feebly striate near the antennæ; postscutel short, its basal angle prominent, acute; tergum and venter with moderate, dense punctures.....**cæruleum.**

Hedychrum obsoletum Say, Bost. Jour. i, 1835, 284, 1, ♀.
Hedychrum Zimmermanni Dahlb., Dispos. 1845, 2, 1; Hym. Eur. ii, 61, 82.
Hab.—Penn., Ill., (Coll. Am. Ent. Soc.); Iowa, (Say). In punctures and color, this is much like *Elampus sinuosum* Say, but has less of purple. The back of the head fits closely upon the thorax, so that the separation is hardly visible.

Hedychrum Wiltii Cresson, Proc. Ent. Soc. Phil. iv, 1865, 305, ♂.
Hab.—Colorado, (Coll. Am. Ent. Soc.) This is the largest species of the genus yet described in this country. Color greenish-blue, with violaceous reflections. Length .50 inch.

Hedychrum cupricolle Cresson, Proc. Ent. Soc. Phil. iv, 1865, 305, ♀.
Hab.—Colorado, (Coll. Am. Ent. Soc.) The only species yet discovered here, with cupreous or golden colors; the whole thorax above is of this character. Length 4 lines.

Hedychrum vernale Cresson, Proc. Ent. Soc. Phil. iv, 1865, 104, ♂.
Hab.—Cuba, (Coll. Am. Ent. Soc.)

Hedychrum cyaniventre Cresson, Proc. Ent. Soc. Phil. iv, 1865, 104, ♂.
Hab.—Cuba, (Coll. Am. Ent. Soc.)

Hedychrum dimidiatum Say, Long's 2d Exp. ii, 331, 2, 1824.
Hab.—Conn., N. Y., Pa., Del., Va., (Coll. Am. Ent. Soc.) This species may readily be known by the striæ which do not cross the basin of face, and the punctured area beneath the postscutel; the tergum has variable violaceous tints, the apex of the final segment is broadly rounded. Length ♂ ♀ .28 inch.

Hedychrum viride Cresson, Proc. Ent. Soc. Phil. iv, 1865, 306, ♀.

Hab.—Colorado, Dacota, California, (Coll. Am. Ent. Soc.) Colors almost wholly green. In the subconical and pinched abdomen this approaches to *Elampus*. Length 3¼ lines.

Hedychrum Louisianæ n. sp.—♂.—Color green, spotted with blue on the occiput and prothorax, and with violaceous reflections in the middle of tergum; tegulæ and venter purple; apical half of wings subopaque; basin of face with cross striæ, and a polished space at summit; mandibles long and stout, with two feeble incisions within; head and thorax with large close punctures; postscutel rounded behind, its edge closely set with large punctures; the declivity to the dividing ridge of metathorax abrupt, the first side foveola small, longer than wide, the second very large; tergum with moderate separated punctures, a narrow polished band at apex and base of each segment, the margin of third segment slightly hollowed in middle and obtusely angulate at sides; venter purple, basal third of each segment shining, remainder dull with punctures and coarse hair; hinder femora purple, covered before with dense whitish hair; apex of tibiæ and the tarsi brownish; claws with a large inner tooth. Length .48 inch.

Hab.—Louisiana, (My own collection and that of the Am. Ent. Soc.) Two specimens.

Hedychrum violaceum Brullé, Hym. iv, 51, 2, ♂.

Hab.—Conn., Del., Va., Mex., (Coll. Am. Ent. Soc.) I find no male which coincides with Brullé's description of *violaceum*, but several females. So with *H. asperum*, I find very many males and no females. To avoid making new species, I have thought best to consider the *violaceum* of Brullé as a female. Very possibly the two are the sexes of one species.

Hedychrum asperum Brullé, Hym. iv, 52, 3.

Hab.—Conn., Pa., Va., Dac., Mex., (Coll. Am. Ent. Soc.) This presents several variations in form and punctures.

♂.—Apex of third segment of tergum obtusely rounded between the two outer obtuse angles; surface of first and second segments (except apex of second), with closely set moderate, deep punctures, growing larger toward apex of second and on third, posterior femora green.

Var. *a*.—♂.—Apex of third segment between the outer obtuse angles convex nearly in the arc of a circle, or a little more; a polished space down the middle of first and second segments; hinder femora purple or violaceous. Mexico, (Coll. Am. Ent. Soc.)

Var. *b*.—♂ ♀.—Apex of third segment subconic; tergum polished, first and basal two-thirds of second segments with small equal shallow separated punctures; hinder femora of female cyaneous, of male green. Dacota, (Coll. Am. Ent. Soc.)

Hedychrum cæruleum n. sp.—♀.—Color greenish-blue; tegulæ and two basal joints of antennæ the same; tips of tibiæ and tarsi brown; wings faintly clouded; basin of face punctured, feebly striate near antennæ; anterior edge of clypeus straight; mandibles small, with no perceptible inner teeth; head and thorax closely punctured; postscutellum short, triangular, conical, its hinder angle elevated, the first foveola longer than wide, reaching the summit of cone, the second large, almost coalescing with that on the other side; tergum covered with close numerous little punctures, apex rounded; venter closely punctured. Length .16 inch.

Hab.—Dacota, (Coll. Am. Ent. Soc.). One specimen.

Hedychrum Cressoni n. sp.—♀.—Color green, changing into blue-black at apex of and across mesothorax, and at base of each segment; bright green beneath; a violaceous stripe connecting the summit of eyes back of the ocelli; basal half of wings hyaline, apical half clouded, darkest near stigma; the three basal joints of antennæ, venter and legs, green; basin of face shining, polished near antennæ, the upper third with cross striæ; head and prothorax covered with coarse, separated pits, closer on the head; scutel continued in the form of a frustrum of a cone beyond the ordinary polished foveolæ on each side; basin at base of second abdominal segment abrupt, nearly as wide as segment, polished; tergum covered with small distinct punctures across the apex of each segment, and coarser at sides; margin of third segment lightly notched, and very obtusely bent at sides; inner margin distinctly hollowed, with a defined basin from the notch half across the segment; claws with a strong inner tooth and a distinct tooth at base. Length .48 inch.

Hab.—Mexico, (Coll. Am. Ent. Soc.) One specimen.

CHRYSIS Linn.*

Sec. I.—*Margin of third abdominal segment rounded, the angles or corners on each side rounded or very obtusely angulate.*

No carina across the basin of face below the ocelli.

Apical margin of third segment rounded, flattened at apex, corners rounded; ante apical series of pits ending near the angles.....**hilaris**, ♂.

Apical margin subtruncate.

An obtuse angle on each side, not sharply defined; ante-apical series of pits ending near the base of segment; the pits near the middle longer than wide.....**pacifica**, ♀.

An obtuse well defined angle on each side, the margin between the angles sinuate.....**integer**, ♀.

A carina across the basin of face, the basin with cross striæ.....**striatellus.**

Chrysis hilaris Dahlb., Hym. Eur. ii, p. 103, 56, 1854.

Hab.—Canada, Connecticut, (Coll. Am. Ent. Soc.)

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* The colors of most of our species are green, changing into blue or violaceous. Almost invariably when the insect is rolled up into a ball or bent, violaceous bands are seen across the tergum and shoulders. When the insect is not bent these disappear beneath other parts of the body. Many describers seem to be ignorant of this, and cause great confusion in their haste to make new species.

♂.—The basin of face in this and the two succeeding species, is punctured and not well defined. The four basal joints of the antennæ are green. Color of body mostly blue-green. Punctures of prothorax and first segment of tergum separated, of two sizes, with numerous minute punctures between; those of second segment smaller as they approach the apex, where they are subobsolete and the surface polished; at the sides they are more abundant, with many larger shallow pits; on the third segment they are larger and more dense. The ante-apical series of pits ends near the side angles. The series of foveolæ crossing the mesopleura longitudinally, are similar in this and *pacifica*, viz.: a distinct round deep pit near the abdomen; the next two or three toward the head are divided by subobsolete carinæ. The mesopleura is not sharply defined. Length .22 inch.

Chrysis pacifica Say, Macl. Lyc. i, 1828, 82, 1.

Hab.—Mass., Conn., N. Y., Del., (Coll. Am. Ent. Soc.)

♀.—The description of Say applies equally well to the above, which is probably the male of this. The ante-apical series of pits extends nearly to the base of the segment; the foveola are longer than wide, becoming round at the sides; apical margin of the segment with indistinct cross striæ; the side angles of the margin are better defined in some specimens than in others; between these and the base of the segment, the margin shows another subangulation. In some cases the basin of face shows a polished space down the middle. Length .22 inch.

Chrysis integra Cresson, Proc. Ent. Soc. Phil. iv, 1865, 306, 1.

Hab.—Massachusetts, Colorado, (Coll. Am. Ent. Soc.)

♀.—This is much larger than the other species, which it closely resembles in form. The color is mostly green in specimens from Colorado, mostly bluish in an individual from Massachusetts. There are about three sizes of punctures on the tergum, with minute punctures between, especially on the smooth subcarinate space down the middle. The marginal angles at sides of third segment are well defined, slightly prominent beyond the inner margin, the outer sides sinuous, with a depression where there is an angulation in *pacifica*. The line of foveolæ crossing the mesopleura are not as large as in *hilaris*, and more numerous; the large pits beneath have fine cross striæ. Length .50 inch.

Var. *a*.—♀.—The angles at sides of third segment are produced into strong teeth, the punctures of the segment more dense, the

ante-apical series of pits deep, confluent. The cross striæ in the mesopleural pits are wanting in the specimen from Massachusetts, which may be a distinct species.

Chrysis striatellus n. sp.—♂ ♀.—Color greenish-violaceous, with more of green upon the head, sides of thorax, and apex of each segment of abdomen; most part of tergum violet-blue; the three basal joints of antennæ and first tarsal joint green; wings very faintly clouded, nervures of the discoidal cell quite indistinct, marginal cell complete, its lower vein bent, not distinctly angulate; basin of face with cross striæ, its sides with white hair, most abundant in the males; a carina, quite removed from the ocelli, across its upper margin, not touching the eyes; clypeus with a widely angulate depression in the middle; mandibles with an incision near the middle; head and thorax closely covered with nearly equal punctures; a smooth area in the front of scutellum, its surface not polished; a large punctured depression in front of postscutel, and the deep central hollow of basin of first segment, all punctured; surface of tergum not polished, coriaceous, covered with separated, moderate, deep punctures; ante-apical space of third segment deep, its series of pits longer than wide, subobsolete, the apical margin rounded, without angulate corners, with a wide shallow depression in the middle, at times; mesopleura with well defined, subcarinate edges. Length .23 inch.

Hab.—Mass., Pa., Del., Va., Ill., (Coll. Am. Ent. Soc.)

Sec. II.—*Margin of third abdominal segment sinuate, its middle notched.*

Notch moderate, its inner angles distinct, the margin sinuate with no apparent angles at corners; basin of face with cross striæ.....**perpulchra.**
Notch rather deep, the margin sinuate, with a distinct angle on each corner; basin of face punctured.....**densa.**

Chrysis perpulchra Cresson, Proc. Ent. Soc. Phil. iv, 1865, 308, ♂ ♀.

Hab.—Can., Del., Col., (Coll. Am. Ent. Soc.)

Specimens differ much in color and in the form of margin of third segment. All have a cross carina above the basin of face (but separated from it by a punctured space), from each side of which springs a carina enclosing the lower ocellus. The ante-apical foveolae are longer than wide, deep and distinct. The mesopleura below the middle is narrow, bent and produced to an acute angle, with well defined side ridges. Length .37 inch.

Chrysis densa Cresson, Proc. Ent. Soc. Phil. iv, 1865, 307, ♀.

Hab.—Colorado, (Coll. Am. Ent. Soc.)

The sides of the third abdominal segment beyond the angular corner are straight; the ante-apical space is shallow, the foveola open beneath; mesopleura as above, the series of pits crossing the middle numerous and very deep. Length .40 inch.

Sec. III.—*Margin of third abdominal segment bidentate.*

Chrysis scitula Cresson, Proc. Ent. Soc. Phil. iv, 1865, 309.

Hab.—Colorado, (Coll. Am. Ent. Soc.)

The two apical teeth are as near as the two middle teeth in the 4-dentate species; there are two very obtuse retracted outer angles where the outer teeth would be. The face has no cross carina, the basin is deep, punctured. The mesopleura below its middle is well defined, narrow and produced to an acute angle.

Sec. IV.—*Margin of third abdominal segment tridentate.*

Margin with three acute teeth; the ante-marginal space wide, smooth, with two or three large open pits and several round separate pits. Postscutellum suboonic, at the apex sublacerate. Segments of tergum smooth, with large, round, deep, separated punctures of two sizes upon first and third segments, smaller on second with minute punctures between on the sides of all; base of first segment with three punctured basins the central deepest. An irregular carina across the face below ocelli, with a carina at each end parallel with eyes, which may be traced around the whole orbit. Females with a third, small ventral plate protruded beyond the middle of second.

Two carinæ arising from the transverse carina.
Not inclosing lower ocellus..... **parvula.**
Inclosing lower ocellus..... **mucronata.**

Chrysis parvula Fabr., Syst. Piez. 176, 30, 1804; Dahlb., Hym. Eur. ii, 191, 103, ♂ ♀.

Chrysis carinata Say, Ann. Macl. Lyc. i, 82, 2.

Chrysis tridens Lep et Serv., Encyc. i, 405; (Pyria), Brullé, Hym. iv, 46, 34, ♀.

Chrysis 3-dentata Dahlb., Dispos. 1845, 15, 22.

Chrysis virens Cress., Proc. Ent. Soc. Phil. iv, 309, ♀.

Hab.—Conn., N. Y., Del., Md., Va., Ill., Fla., Miss., La., Col., (Coll. Am. Ent. Soc.) Specimens differ greatly in color and size.

Chrysis mucronata Brullé, Hym. iv, 1846, 48, 33, ♀.

Hab.—Lower California, Mexico, (Coll. Am. Ent. Soc.)

♂ ♀.—Color a brilliant green and violet, with black-blue spots upon the tergum, (not the bands which appear when the tergum is bent). This is probably a variety of *C. parvula.*

(The 4- and 6-dentate species not studied).

Catalogue of the MUTILLIDÆ of North America, with descriptions of new species.

BY CHARLES A. BLAKE.

MUTILLA Linn.

♂.

Ajax Blake, Trans. Am. Ent. Soc. iii, 1871, 226, ♂. (Coll. Harris). Florida.

♀♀.

vigilans Say, Bost. Jour. i, 296; Blake, Trans. Am. Ent. Soc. iii, 229, ♂. M. S.
Briaxus Blake, Trans. Am. Ent. Soc. iii, 227, ♂. Pa., Del.
hexagona Say, ibid. 228, ♂. S. & W. States.
ornativentris Cress. Proc. Ent. Soc. Phil. iv, 438, ♀. S. & W. States.
Grotei Blake, Trans. Am. Ent. Soc. iii, 228, ♂. Colorado.
cajaca Blake, ibid. 228, ♂ ♀. Mexico.
Promethea Blake, ibid. 229, ♂. Louisiana.
contracta Say, Bost. Jour. i, 295; Blake, Trans. Am. Ent. Soc. iii, 229, ♂. W. S.
Sayi Blake, Trans. Am. Ent. Soc. iii, 229, ♂. Texas.
senex Guér.; Blake, ibid. 230, ♂. Cuba.
floridensis Blake, ibid. vii, 249, ♂. Florida.
Leona Blake, ibid. iii, 230, ♀. Mexico.
pallicops Cress. Proc. Ent. Soc. Phil. iv, 112, ♀. Cuba.
dubitata Sm. Brit. Mus. Cat. iii, 60, ♀. Florida.
scrupea Say; Blake, Trans. Am. Ent. Soc. iii, 230, ♂. Eastern States.
gracilis Sm. Brit. Mus. Cat. iii, 42, ♂. Texas, Mexico.
cubensis Blake, Trans. Am. Ent. Soc. iii, 231, ♀. Cuba.
Cinaloa Blake, ibid. 231, ♀. Mexico.
Yucatana Blake, ibid. 231, ♀. Mexico.
peculiaris Cress. ibid. v, 119, 1876, ♀. California.
Copano Blake, ibid. iii, 232, ♂. Texas.

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scaeva Blake, Trans. Am. Ent. Soc. iii, 232, ♂. Texas.
exulans Fab. Ent. Syst. ii, 358, ♀. North America.
pennsylvanica St. Farg.; Blake, Trans. Am. Ent. Soc. iii, 233, ♂. Mid. States.
auripilis Blake, Trans. Am. Ent. Soc. iii, 233, ♂. Texas.
Edwardsii Cress. ibid. v, 119, ♂. Oregon.
Orcus Cress. Proc. Ent. Soc. Phil. iv, 428, ♂ ♀. Texas.
Gorgon Blake, Trans. Am. Ent. Soc. iii, 233, ♀. Texas.
Tisiphone Blake, ibid. vii, 249, ♀. Texas.
Zelaya Blake, ibid. iii, 234, ♂. Texas.
Comanche Blake, ibid. 234, ♂ ♀. Texas.
texana Blake, ibid. vii, 250, ♀. Texas.
Clotho Blake, ibid. iv, 72, ♀. Texas.
Erato Blake, ibid. vii, 251, ♀. Texas.
Sackenii Cress. Proc. Ent. Soc. Phil. iv, 385, ♀. California.
Clio Blake, Trans. Am. Ent. Soc. vii, 251, ♀. Vancouver.
magna Cress. Proc. Ent. Soc. Phil. iv, 385, ♀. Colorado.
Holotricha Sauss. Ann. Soc. Ent. Fr. ser. 4, vii, 361, ♀. Mexico.

aureola Cress. Proc. Ent. Soc. Phil. iv, 385, ♀. California.
canina Sm. Brit. Mus. Cat. iii, 58, ♀. Mexico.
Leda Blake, Trans. Am. Ent. Soc. iv, 72, ♀. Texas.
combusta Sm. Brit. Mus. Cat. iii, 59, ♀. Mexico.
tecta Cress. Trans. Am. Ent. Soc. v, 119, ♀. California.
rubriceps Cress. Proc. Ent. Soc. Phil. iv, 111, ♀. Cuba.
erudita Cress. Trans. Am. Ent. Soc. v, 120, ♀. California.
Sicheliana Sauss. Ann. Soc. Ent. Fr. ser. 4, vii, 360, ♀. Mexico.
pacifica Cress. Trans. Am. Ent. Soc. v, 120, ♀. California.
vestita St. Farg. Hym. iii, 634, ♂ ♀. Mexico.
Ursula Cress. Trans. Am. Ent. Soc. v, 120, ♂. Texas, Oregon.
auraria Blake, ibid. vii, 248, ♀. Nevada.
Arota Cress. ibid. v, 120, ♀. California.
Marpesia Blake, ibid. vii, 247, ♀. Kansas, Utah.
californica Radov. Horæ Soc. Ent. Ross, 1861, 86, pl. 2, fig. 7, ♀. California.
Phædra Blake, Trans. Am. Ent. Soc. vii, 251, ♀. Nevada.
fulvohirta Cress. Proc. Ent. Soc. Phil. iv, 433, ♂. Colorado.
Aspasia Blake, Trans. Am. Ent. Soc. vii, 250, ♀. Nevada.
Chiron Blake, ibid. iv, 72, ♂. Texas.
Zenobia Blake, ibid. vii, 250, ♀. California.
Bellona Cress. Proc. Ent. Soc. Phil. iv, 434, ♀. Colorado.
verticalis Sm. Brit. Mus. Cat. iii, 63, ♀. Mexico.
Ægina Cress. Proc. Ent. Soc. Phil. iv, 435, ♀. Colorado.
rufa St. Farg. Hym. iii, 631, ♂. Atlantic States.
coccineohirta Blake, Trans. Am. Ent. Soc. iii, 235, ♂ ♀. California.
pulchra Sm. Brit. Mus. Cat. iii, 61, ♀. Mexico.
Sumichrasti Sauss. Ann. Ent. Soc. Fr. ser. 4, vii, 357, ♂ ♀. Mexico.
militaris Sm. Brit. Mus. Cat. iii, 61, ♀. Jamaica.
occidentalis Linn. Syst. Nat. i, 966; St. Farg. Hym. iii, 595, ♂ ♀. N. Am.
andreniformis Sm. Brit. Mus. Cat. iii, 55, ♂. Mexico.
Creusa Cress. Proc. Ent. Soc. Phil. iv, 431, ♀. Colorado.
antiguensis Fabr. Ent. Syst. ii, 367, ♂. Mexico, Antigua.
medea Cress. Proc. Ent. Soc. Phil. iv, 432, ♀. Colorado.
bioculata Cress. ibid. 431, ♂. Colorado.
Asopus Cress. ibid. 435, ♂. Colorado.
Hector Blake, Trans. Am. Ent. Soc. iii, 237, ♂. Kansas.
monticola Cress. Proc. Ent. Soc. Phil. iv, 430, ♂. Colorado.
castor Blake, Trans. Am. Ent. Soc. iii, 237, ♂. Texas, Kansas.
fenestrata St. Farg. Hym. iii, 627, ♂. Atlantic States.
ochracea Blake, Trans. Am. Ent. Soc. vii, 247, ♂ ♀. Nevada.
Creon Blake, ibid. iv, 73, ♂. Texas.
Bexar Blake, ibid. iii, 238, ♂. Texas.
Waco Blake, ibid. 238, ♀. Texas.
Admetus Blake, ibid. iv, 74, ♂. Texas.
macra Cress. Proc. Ent. Soc. Phil. iv, 429, ♂. Texas.
apicalata Blake, Trans. Am. Ent. Soc. iii, 238, ♂. Mexico.
canella Blake, ibid. 239, ♂. Texas.
macilenta Blake, ibid. 239, ♂. Texas.
obscura Blake, ibid. 239, ♂. Massachusetts.
gibbosa Say, Bost. Jour. i, 198, ♂. Western States.

Wilsoni Cress. Proc. Ent. Soc. Phil. iv, 112, ♂. Cuba.
asteca Blake, Trans. Am. Ent. Soc. iii, 240, ♂. Mexico.
montezumæ St. Farg. Hym. iii, 634, ♀. Mexico.
melanosoma Blake, Trans. Am. Ent. Soc. iii, 240, ♀. Panama.
trisignata Blake, ibid. 241, ♀. Florida.
Ixtapa Blake, ibid. 241, ♂. Honduras.
Proserpina Blake, ibid. 241, ♀. Honduras.
mixtura Blake, ibid. vii, 251, ♀. Colorado.
Cressoni Blake, ibid. iii, 68, ♀. Mexico.
Nortoni Blake, ibid. 68, ♀. Mexico.
Toluca Blake, ibid. 242, ♀. Mexico.
Ariadne Blake, ibid. 243, ♀. Mexico.
Solola Blake, ibid. 243, ♀. Guatemala.
arachnoides Sm. Brit. Mus. Cat. iii, 57, ♀. Mexico.
formosa Blake, Trans. Am. Ent. Soc. iii, 244, ♀. Mexico.
balopilus Blake, ibid. 244, ♀. Mexico.
Altamira Blake, ibid. 244, ♀. Mexico.
Xalisco Blake, ibid. 245, ♀. Mexico.
Ulkei Cress. Proc. Ent. Soc. Phil. iv, 387, ♀. Lower California.
nigriceps Cress. ibid. 110, ♀. Cuba.
floridana Blake, Trans. Am. Ent. Soc. iii, 245, ♀. Florida.
tolteca Blake, ibid. 246, ♀. Mexico.
versicola Fab. Ent. Syst. ii, 371, ♀. Florida.
4-guttata Say, West. Quar. Rep. ii, 74, ♀. Texas.
frigida Sm. Brit. Mus. Cat. iii, 60, ♀. Arctic America.
Cypris Blake, Trans. Am. Ent. Soc. iii, 246, ♀. Georgia.
vagans Fab. Ent. Syst. Suppl. 282, ♀. North America.
ferrugata Fab. Syst. Piez. 438, ♀; St. Farg. Hym. iii, 608. United States.
albopilosa Blake, Trans. Am. Ent. Soc. iv, 74, ♀. Texas.
caneo Blake, ibid. vii, 250, ♀. Texas.
mutata Blake, ibid. iii, 247, ♀. E. M. & S. States.
scævola Blake, ibid. 247, ♀. Atlantic States.
balteola Blake, ibid. 248, ♀. E. M. & S. States.
propinqua Cress. Proc. Ent. Soc. Phil. iv, 433, ♂. Colorado.
Oceola Blake, Trans. Am. Ent. Soc. iii, 248, ♂. Florida.
Sanbornii Blake, ibid. 248, ♂. Massachusetts.
flavida Blake, ibid. 249, ♂. Texas.
laticeps Blake, ibid. 249, ♂. Mexico.
grandiceps Blake, ibid. iv, 74, ♂ ♀. Texas.
rutilans Blake, ibid. vii, 248, ♀. California.
Xalapa Blake, ibid. iii, 249, ♂. Mexico.
Zapoteca Blake, ibid. 250, ♂. Mexico.
Gila Blake, ibid. 250, ♂. Texas.
Robinsonii Blake, ibid. 250, ♀. Mexico.
capitata Sm. Brit. Mus. Cat. iii, 59, ♀. Mexico.
quadridens Blake, Trans. Am. Ent. Soc. vii, 247, ♀. Panama.
Gabbii Blake, ibid. 248, ♀. Costa Rica.
Electra Blake, ibid. iv, 75, ♀. Texas.
Lerma Blake, ibid. iii, 251, ♀. Mexico.
canadensis Blake, ibid. 252, ♀. Canada.

bisignata Blake, Trans. Am. Ent. Soc. 252, ♀. Mexico.
connectens Cress. Proc. Ent. Soc. Phil. iv, 387, ♀. Lower California.
contumax Cress. ibid. 437, ♀. Colorado.
gothica Blake, Trans. Am. Ent. Soc. iii, 252, ♀. Mexico.
Izucar Blake, ibid. 253, ♀. Mexico.
Chiapa Blake, ibid. 253, ♀. Mexico.
cruciata Sm. Brit. Mus. Cat. iii, 42, ♀. Mexico.
petricola Blake, Trans. Am. Ent. Soc. iii, 253, ♀. Mexico.
auripes Blake, ibid. 254, ♀. Mexico.
minutissima Blake, ibid. 254, ♀. Mexico.
pygmea Blake, ibid. vii, 250, ♀. Nevada.
puteola Blake, ibid. 252, ♀. Florida, Texas.
psammadroma Blake, ibid. iii, 254, ♀. Mexico.
simillima Sm. Brit. Mus. Cat. iii, 62, ♀. Atlantic States.
Euterpe Blake, Trans. Am. Ent. Soc. vii, 249, ♀. Florida.
brazoria Blake, ibid. iii, 255, ♀. Texas.
montivaga Cress. Proc. Ent. Soc. Phil. iv, 436, ♀. Colorado.

AGAMA Blake.

mendica Blake, Trans. Am. Ent. Soc. iii, 259, ♂. Nevada.
rustica Blake, ibid. vii, 252, ♂. California.
Orizaba Blake, ibid. iii, 259, ♂. Mexico.
Astyanax Blake, ibid. vii, 254, ♂. Texas.
imperialis Blake, ibid. iii, 260, ♂. Texas.
uro Blake, ibid. vii, 253, ♂. Texas.
Nokomis Blake, ibid. iii, 260, ♂. Arizona.
unicolor Cress. Proc. Ent. Soc. Phil. iv, 389, ♂. California.
Danaus Blake, Trans. Am. Ent. Soc. iii, 261, ♂. Texas.
clara Cress. Proc. Ent. Soc. Phil. iv, 439, ♂. Colorado.
melicausa Blake, Trans. Am. Ent. Soc. iii, 261, ♂. Texas.
Tapajos Blake, ibid. 262, ♂. Texas.
triangularis Blake, ibid. 262, ♂. Nevada.
concolor Cress. Proc. Ent. Soc. Phil. iv, 439, ♂. Colorado.
pallida Blake, Trans. Am. Ent. Soc. iii, 263, ♂. Texas.
hyalina Blake, ibid. 263, ♂. Texas.
Belfragei Blake, ibid. 263, ♂. Texas.
nubecula Cress. Proc. Ent. Soc. Phil. iv, 40, ♂. Colorado.
castanea Cress. ibid. 388, ♂. Lower California.
Alcanor Blake, Trans. Am. Ent. Soc. iii, 264, ♂. Arizona.
ampla Blake, ibid. vii, 252, ♂. Colorado.
glabrella Cress. Proc. Ent. Soc. Phil. iv, 414, ♂. Colorado.
albipes Cress. Trans. Am. Ent. Soc. v, 99, ♂. Nevada.
Aulus Blake, ibid. iv, 75, ♂. Texas.
minuta Blake, ibid. 76, ♂. Texas.
juxta Blake, ibid. 76, ♂. Texas.
ferruginea Blake, ibid. vii, 254, ♂. Nevada.
attenuata Blake, ibid. iv, 76, ♂. Texas.
contracta Blake, ibid. vii, 253, ♂. Nevada.
atrata Blake, ibid. 253, ♂. Nevada.
bicolor Blake, ibid. 252, ♂. Texas.

MYRMOSA Latr.

unicolor Say; Blake, Trans. Am. Ent. Soc. iii, 265. Pennsylvania, Missouri.
rufiventris Blake, ibid. vii, 254, ♂. Colorado.

METHOCA Latr.

stygia Say, (Tengyra), Bost. Jour. i, 299, ♂. Canada, Indiana, Colorado.
canadensis Sm. Brit. Mus. Cat. iii, 67, ♂.
Poeyi Guér. Icon. Règ. Anim. Ins. 430, ♂ ♀. Cuba.

Descriptions of New Species.

Mutilla quadridens.—♀.—Black, head quadrate, double the width of thorax, posterior angles acute, face densely rugose, vertex clothed with pale golden pubescence, cheeks prominent, deeply punctured, bearing beneath two strong spines, curved forward, in front of these, behind the mandibles, are two shorter ones, head below clothed with long glittering hairs; mandibles black, polished, stout, with two teeth before the apex; antennæ black, scape clothed with long pale golden pubescence, flagellum dark ferruginous in front; eyes moderately prominent, ovate; thorax subquadrate, slightly constricted, rugose, prothorax with a stout tubercle on each side posteriorly, disc of mesothorax clothed with pale golden pubescence; metathorax roundly truncate, flanks polished, very thinly sericeous; legs black, polished, clothed with long glittering hairs, the intermediate and posterior tibiæ armed exteriorly with a row of spines, calcaria long, black; abdomen ovate, basal segment nodose, second segment having an ovate spot of deep golden pubescence on the disc, apical margins of segments thinly fringed with long pale hairs; under side shining, punctured, thinly clothed with pale glittering hairs. Length 19 mm.

Hab.—Panama, (H. Strecker). This species is allied to *Robinsonii* and *capitata*, but is readily distinguished from the former by the ovate spot on second abdominal segment, and from the latter by the size of the head.

Mutilla Marpesia.—♀.—Black, head subquadrate, rounded posteriorly, clothed with yellow pubescence, cheeks coarsely punctured, mouth densely clothed with pale pubescence; antennæ fuscous, scape clothed with whitish pubescence, flagellum slightly pruinose; eyes round, polished; thorax ovate densely covered with yellow pubescence; legs black, thinly clothed with long silvery hairs, spines of tibiæ and tarsi fuscous; abdomen ovate, apical margin of basal segment fringed with pale pubescence, basal half of second segment black, closely punctured, clothed with erect black hairs, apical margin and remaining segments clothed with yellow pubescence; ventral segments black, deeply punctured; entire insect beneath, thinly clothed with long silvery hairs, more dense on apical margins. Length 10—12 mm.

Hab.—Kansas, Utah, (Snow.)

Mutilla ochracea.—♂.—Black; head, thorax and abdomen, with exception of the first, and basal half of second segments, clothed with long, erect ochraceous pubescence; head round, closely punctured, eyes prominent, round, polished; antennæ black, scape finely punctured; thorax robust, ovate, metathorax abruptly truncate, coarsely reticulate, flanks coarsely punctured;

wings fuliginous, marginal cell short, truncate at tip, three distinct submarginal cells, first longer than the marginal, the second subquadrate, receiving the first recurrent nervure near the base, the third, pentagonal, extending beyond the marginal; tegulæ large; legs black, clothed with black hairs; abdomen ovate, basal segment coarsely punctured, clothed with erect black hairs, second more moderately punctured; under side black. Length 16 mm.

The ♀ differs in having the sculpture of thorax much coarser, and the pubescence somewhat paler. Length 12 mm.

Hab.—Nevada, (Morrison). This species closely resembles *aureola* Cress., but may be distinguished by the smaller size of the head.

Mutilla auraria.—♀.—Black, head rounded, densely clothed on vertex with golden pubescence, cheeks testaceous, coarsely punctured; antennæ fusco-testaceous, flagellum slightly pruinose; mouth clothed with long white hairs; eyes round, polished; thorax ovate, narrowed posteriorly, densely clothed with golden pubescence; legs blackish-fuscous, tarsi, spines, and calcaria, testaceous; abdomen ovate, clothed with golden pubescence, more dense on apical segments; ventral surface black, thinly clothed with long white hairs, margins of apical segments densely fringed with pale golden pubescence. Length 12 mm.

Hab.—Nevada, (Morrison).

Mutilla rutilans.—♀.—Entire insect bright castaneous; head quadrate, wider than thorax, posterior angles rounded, polished, covered with exceedingly minute punctures; eyes small, ovate and finely reticulate; antennæ somewhat pruinose; prothorax smooth, prominent, meso- and metathorax minutely punctured, the latter obliquely truncate, and having on each side a small tubercle; legs slender, tibiæ armed with a row of minute spines; abdomen polished, ovate, short, apical margin of basal segment black, second segment with two subquadrate white spots on the disc, fifth honey-yellow, apex black. Length 7 mm.

Hab.—California. This species differs from all others known to me by the entire absence of pubescence.

Mutilla Gabbii.—♀.—Black; head subquadrate, as wide as thorax, posterior angles rounded, densely rugose, sparsely clothed with erect black hairs; above the eyes on vertex are two ovate spots of appressed pale golden pubescence, cheeks prominent, coarsely, confluently punctured; mandibles black, mouth clothed with pale yellowish hairs; scape of antennæ clothed with pale golden pubescence, flagellum slightly pruinose; eyes prominent, round, polished; thorax subquadrate, narrowed posteriorly, densely rugose, anterior angles of prothorax armed with a short tooth; disc of mesothorax bearing a transverse band of pale golden pubescence, anterior angles produced into acute teeth, flanks deeply excavate, filled with pale pubescence below, above which they are polished; metathorax roundly truncate, with an obtuse tooth on each side anteriorly, disc having on each side an elongate ovate stripe of pale golden pubescence; legs clothed with pale yellowish hairs, calcaria pale; abdomen elongate-ovate, basal segment having two lateral patches of pale golden pubescence, second finely rugose, the dorsal surface bearing numerous minute, longitudinal, parallel carinæ, on the disc are two round yellow spots, and two lateral stripes, thinly clothed with pale golden pubescence;

apical segments black at middle, sides clothed with golden pubescence; under side black, second segment moderately coarsely punctured, with a lateral oblique stripe, and apical margins of all the segments clothed with silvery pubescence; anterior margins of all finely aciculate. Length 18 mm.

Hab.—Costa Rica. Two specimens. Collected by the late W. M. Gabb.

Mutilla floridensis.—♂.—Head transverse, not as wide as thorax, black, coarsely punctured, face clothed with whitish pubescence, longer and denser about the mouth; antennæ piceous, scape clothed with glittering hairs. Eyes ovate, acutely emarginate. Thorax robust, ovate, pro- and mesothorax, ferruginous, closely punctured, the latter bearing two discal, longitudinal, faintly impressed lines, apical margin black; scutellum rounded, punctured, metathorax rounded, coarsely reticulate, black at apex. Tegulæ black, large, polished. Wings moderate, fuliginous, marginal cell ovate, obliquely truncate at tip, first submarginal long and narrow, second long, pointed at base, receiving the first recurrent a little before the middle, third irregularly hexagonal, its outer angles with abbreviated nervures. Legs black, thinly clothed with glittering hairs, calcaria white. Abdomen ovate, narrowed to apex, ferruginous, finely punctured, apical margins of all the segments fringed with ferruginous pubescence, under side thorax black, coarsely punctured, a ferruginous spot between anterior and middle coxæ. Length 13 mm.

Hab.—Florida. Three specimens. This species is closely allied to *Sayi*, and may be only a variety; it differs however, in having the basal abdominal segment ferruginous, and disc of metathorax the same color.

Mutilla Tisiphone.—♀.—Nigro-castaneous; head rounded, a little wider than thorax, coarsely punctured, face very broad, the punctures becoming finer about the insertion of antennæ; eyes small, round; antennæ slightly pruinose, scape finely punctured; thorax short, narrowed posteriorly, coarsely, confluently punctured; prothorax fringed with short erect hairs; metathorax abruptly truncate, deeply reticulate, bearing a few erect hairs, flanks moderately excavate and smooth; legs finely punctured, the intermediate and posterior tibiæ armed externally with spines, mixed with fuscous hairs; abdomen elongate-ovate, narrowed to apex, second segment coarsely punctured, its apical margin and remaining segments fringed with golden pubescence; under side as above, except that the marginal fringes are castaneous. Length 17 mm.

Hab.—Texas.

Mutilla Euterpe.—♀.—Ferruginous; head round, finely and closely punctured, face deeply excavate at insertion of antennæ; eyes ovate, finely reticulate; antennæ fuscous, flagellum pruinose, scape finely punctured; mandibles dark ferruginous before the tips; thorax elongate-quadrate, emarginate at sides; pro- and metathorax rounded, the former scarcely as wide as the latter, closely and deeply punctured; metathorax abruptly truncate, stained with fuscous at apex; flanks of mesothorax smooth; legs black, thinly clothed with pale pubescence, intermediate and posterior tibiæ feebly spined, calcaria white; abdomen ovate, basal segment black, second minutely punctured, apical margin broadly black, wider at middle on disc, bearing a short longitudinal line of

pale golden pubescence, apical margin fringed with similar pubescence, third segment black, apical segments fusco-ferruginous, fringed with hairs of the same color. Length 12 mm.

Hab.—Florida. This species is easily recognized by the form of the thorax; it is allied to *fidicula* Sm., which however has the abdomen longitudinally rugose.

Mutilla texana.—♀.—Head and thorax coarsely, confluently punctured, nigro-fuscous, thinly clothed with short erect hairs, the former subquadrate, posterior angles rounded, as wide as thorax; cheeks thinly clothed with glittering hairs; antennæ fuscous, scape punctured, flagellum slightly pruinose; eyes round, prominent, polished; thorax ovate, narrowed posteriorly, metathorax roundly truncate: legs black, clothed with scattered white hairs; femora and tibiæ finely punctured, intermediate and posterior tibiæ armed with spines; abdomen ovate, narrowed to apex, basal segment fuscous, closely punctured, second segment clothed with obscure fulvous pubescence, its apical margin ciliated with yellow, third and fourth segments nigro-fuscous, clothed with black hairs, apex silvery. Length 10 mm.

Hab.—Texas. Two specimens. Allied to *Comanche* Blake.

Mutilla Aspasia.—♀.—Fuscous; head round, scarcely as wide as thorax, closely punctured, clothed with whitish pubescence; antennæ fuscous, flagellum paler, scape finely punctured, clothed with glittering hairs; eyes round, polished; thorax quadrate, slightly narrowed behind, clothed with coarse golden pubescence; metathorax abruptly truncate; legs fuscous, clothed with pale glittering hairs; abdomen ovate, second segment clothed with long silky golden pubescence, apical margins of segments fringed with pale yellowish hairs. Length 7 mm.

Hab.—Nevada. Allied to *auraria* Blake.

Mutilla Zenobia.—♀.—Fuscous; head round, not as wide as thorax, clothed with dense, deep golden pubescence; eyes round, prominent; antennæ fuscous; thorax quadrate, narrowed posteriorly, clothed with reddish golden pubescence, flanks smooth, metathorax abruptly truncate, clothed with long erect hairs; legs fuscous, thinly clothed with long pale hairs; abdomen ovate, basal segment with long erect hairs, second and following segments clothed with dense reddish golden pubescence; ventral fringes whitish. Length 6 mm.

Hab.—California. Allied to *auraria* Blake.

Mutilla caneo.—♀.—Ferruginous; head round, not as wide as thorax, clothed with cinereous pubescence, eyes large, round, prominent; scape of antennæ with whitish hairs; thorax ovate, narrowed posteriorly, thinly covered with griseous hairs, metathorax obliquely truncate; legs thinly clothed with glittering whitish hairs; abdomen ovate, finely punctured, thinly covered with erect white hairs, apical margin of second segment fuscous at middle, fringes of segments white. Length 8 mm.

Hab.—Texas. Allied to *ferrugata* Fab.

Mutilla pygmea.—♀.—Ferruginous; head round, wide as thorax, moderately coarsely punctured; antennæ honey-yellow, scape clothed with yellowish pubescence; tips of mandibles blackish; thorax subovate, narrowed posteriorly,

densely punctured, sparsely clothed with erect white hairs; legs honey-yellow, clothed with pubescence of the same color; abdomen elongate-ovate, closely punctured, thinly clothed with long erect whitish hairs, apical margins of segments above fringed with white pubescence. Length 4½—7 mm.

Hab.—Texas, Colorado, Nevada. Four specimens.

Mutilla mixtura.—♀.—Ferruginous; head round, scarcely as wide as thorax, vertex clothed with pale golden pubescence; eyes prominent; flagellum of antennæ fuscous, slightly pruinose, tips of mandibles blackish; thorax subovate, narrowed posteriorly, clothed above with pale golden pubescence; metothorax obliquely truncate, flanks coarsely punctured; legs thinly clothed with white hairs, spines of the tarsi black; abdomen ovate, closely punctured, thinly clothed with mixed black and yellow hairs, apical half of second segment pale ferruginous, margin blackish, apical margins above and beneath fringed with glittering whitish hairs. Length 7 mm.

Hab.—Colorado.

Mutilla Phædra.—♀.—Ferruginous; head subquadrate, posterior angles rounded, vertex clothed with deep golden pubescence, antennæ fuscous, flagellum pruinose, tips of mandibles blackish, eyes round, cheeks fuscous, closely punctured; thorax short, ovate, clothed on disc with deep golden pubescence, flanks fuscous, metathorax abruptly truncate; legs fuscous, thinly clothed with long whitish hairs; abdomen elongate-ovate, densely clothed above with deep golden pubescence, interspersed with long erect hairs of same color, fringes of apical margins more dense; under side fusco-ferruginous, sparsely punctured. Length 7 mm.

Hab.—Nevada. Allied to *auraria*, but may be distinguished by the tegument being ferruginous.

Mutilla Clio.—♀.—Black; head round, not as wide as thorax, clothed on vertex with coarse ochraceous pubescence; eyes round, prominent; antennæ black; thorax robust, ovate, narrowed posteriorly, clothed on disc with coarse ochraceous pubescence, metathorax abruptly truncate, reticulate, flanks impunctate; legs black, having a few scattered, long black hairs, intermediate and posterior tibiæ armed with spines, calcaria long; abdomen ovate, basal half of second segment black, with coarse black pubescence, apical half and sides of third, fourth and fifth segments clothed with coarse ochraceous pubescence, third and fourth, at middle, and apex black. Length 9½ mm.

Hab.—Vancouver's Island. (H. Edwards).

Mutilla Erato.—♀.—Rufo-castaneous; head round, not as wide as thorax, clothed with dense yellowish-white pubescence; eyes large, round, prominent, polished; antennæ fuscous, scape thinly clothed with whitish hairs; tips of mandibles black; thorax short, ovate, coarsely punctured, metathorax abruptly truncate, thinly clothed with white hairs; legs sparsely clothed with long glittering white hairs, femora punctured; abdomen elongate-ovate, coarsely and deeply punctured, thinly clothed with erect glittering white hairs, apical margins of first and second segments densely fringed with white pubescence; under side same as above. Length 8—12 mm.

Hab.—Texas. Two specimens.

Mutilla puteola.—♀.—Ferruginous; head round, wider than the thorax, closely and evenly punctured; eyes round, large, cheeks clothed with white sericeous pubescence, antennæ fuscous; thorax elongate-ovate, narrowed to apex, closely and regularly punctured, sides slightly sericeous; legs fuscous, thinly clothed with scattered white hairs; abdomen ovate, basal segment clothed with sericeous white pubescence, second closely and regularly punctured, its apical margin fringed at sides with silvery pubescence, fuscous at middle, third segment fuscous, apex paler. Length 5 mm.

Hab.—Texas. Three specimens. Allied to *pygmea* Blake, from which it differs by the narrow thorax, and in being destitute of the long hairs of the abdomen.

Agama bicolor.—♂.—Head and thorax dark honey-yellow, thinly clothed with erect white pubescence; head subquadrate, posterior angles rounded, finely punctured; eyes round, large, prominent; antennæ fuscous toward the tips; tips of mandibles fuscous; thorax ovate, narrowed posteriorly, closely punctured, metathorax roundly truncate, broadly reticulate; wings hyaline, faintly tinged with yellowish toward apex, marginal cell ovate, first submarginal narrow, second subtriangular, receiving the first recurrent about the middle; tegulæ round, honey-yellow; legs fuscous, paler about the joints, clothed with fine white pubescence, calcaria long; abdomen fuscous, ovate, petiolate, petiole subsessile with the second segment, smooth, minutely and remotely punctured, thinly clothed with long, erect white pubescence. Length 5 mm.

Hab.—Texas. Two specimens. Allied to *Nokomis* Blake, but may be easily separated by the small size, and the triangular second submarginal cell.

Agama ampla.—♂.—Head transverse, small, black, polished, eyes and ocelli large, prominent; mandibles honey-yellow before the tips, antennæ fulvous; thorax elongate-ovate, narrowed to apex, dark honey-yellow, shining, metathorax tapering posteriorly, smooth, flanks of mesothorax swollen; wings as long as entire insect, hyaline, iridescent, marginal cell short, arcuate, lying almost entirely beneath the stigma which is large, lanceolate, fuscous, first submarginal as large as the second and third together, second small, triangular, receiving the first recurrent near the base, third subquadrate, receiving the second recurrent near the middle; tegulæ honey-yellow; legs pale honey-yellow, thinly clothed with yellow pubescence; abdomen elongate-ovate, petiolate, petiole long, thinly clothed with white hairs, second and following segments fuscous, with the apical margins dark honey-yellow, clothed with a few scattered hairs. Length 14—16 mm.

Hab.—Colorado. Two specimens. Allied to *alcanor* Blake, but may be easily separated by the form of the metathorax.

Agama rustica.—♂.—Head round, as wide as the thorax, honey-yellow, clothed with erect fulvous hairs; eyes and ocelli prominent, antennæ fuscous, as long as the head and thorax, flagellum pruinose; thorax black, disc of mesothorax clothed with coarse fulvous pubescence, metathorax roundly truncate, coarsely and broadly reticulate; wings yellowish hyaline, clouded about the

middle and apex; marginal cell ovate-lanceolate, first submarginal narrow, pointed toward the base, second subquadrate, receiving the first recurrent near the base; legs black, thinly clothed with white hairs, calcaria fuscous; abdomen elongate-ovate, petiolate, narrowed to apex, petiole fuscous, finely punctured, thinly clothed with long white pubescence, apical fringe yellow, second and following segments honey-yellow, the apical margins fringed with long yellow pubescence, second segment beneath, fuscous. Length 16 mm.

Hab.—California, (Henry Edwards).

Agama contracta.—♂.—Uniform bright ferruginous, thinly clothed with erect hairs, head rounded, as wide as thorax; eyes round, prominent; flagellum of antennæ slightly pruinose; upper edges and tips of mandibles blackish; thorax ovate, rounded posteriorly, minutely punctured, mesothorax with two faintly impressed lines, scutellum rounded, metathorax abruptly truncate, reticulate; wings fuscous, marginal cell short, ovate, first submarginal long, narrow, second subtriangular, its apical nervure sinuate, and receiving the first recurrent near the middle, stigma small, fuscous; tegulæ dark honey-yellow; legs thinly clothed with scattered hairs; abdomen ovate-petiolate, short, shining, apical margin of petiole blackish, margins of remaining segments fringed with ferruginous pubescence. Length 9 mm.

Hab.—Nevada.

Agama atrata.—♂.—Uniform black; shining, thinly clothed with a few scattered erect hairs; head transverse, as wide as thorax, antennæ fuscous, mandibles dark ferruginous; eyes large, round, prominent; thorax robust, ovate, narrowed posteriorly, flanks beneath the wings much swollen; wings hyaline, iridescent, marginal cell very short, arcuate, rounded at apex, first submarginal large, second triangular, receiving the first recurrent near the base, third quadrate, receiving the second recurrent before the middle; stigma large, black; tegulæ honey-yellow; femora black, tibiæ and tarsi fuscous, clothed with pale pubescence; abdomen elongate-ovate, petiolate, petiole pyriform, with a longitudinal dorsal impression, not extending to apical margin, which is constricted, and on ventral surface a longitudinal sulcus, widening at apex; apical margins of segments narrowly fusco-ferruginous. Length 7—9 mm.

Hab.—Nevada. Seven specimens. Easily distinguished by the uniform black color, and extreme shortness of the marginal cell.

Agama uro.—♂.—Ferruginous; head round, not as wide as thorax, minutely punctured, thinly clothed with erect white hairs; eyes round, prominent; scape of antennæ finely punctured; thorax robust, ovate, closely punctured, mesothorax with two longitudinal, impressed lines, sparsely clothed with erect white hairs, metathorax roundly truncate, coarsely reticulate, excavations of the flanks smooth; wings yellowish hyaline, marginal cell ovate lanceolate, abruptly truncate at tip, first submarginal subovate, pointed at base, second subtriangular, receiving the first recurrent nervure before the middle; tegulæ honey-yellow; legs fuscous, clothed with whitish pubescence; abdomen short, petiolate, minutely punctured, smooth, apical margins of segments thinly fringed with white pubescence. Length 10 mm.

Hab.—Texas. Two specimens.

Agama Astyanax.—♂.—Fusco-ferruginous; head quadrate, posterior angles rounded, finely punctured, thinly clothed with erect yellowish hairs; eyes large, prominent, polished; antennæ fuscous, scape punctured, flagellum pruinose; thorax ovate, narrowed posteriorly, closely punctured, mesothorax with two short impressed, longitudinal lines, thinly clothed on disc with yellowish pubescence, metathorax roundly truncate, broadly reticulate, flanks deeply excavate; wings yellowish hyaline, marginal cell ovate, lanceolate, roundly truncate at tip, first submarginal small, narrow, second subquadrate, narrowed to apex, receiving the first recurrent before the middle; tegulæ dark honey-yellow; legs fuscous, clothed with yellowish pubescence, calcaria long; abdomen ovate-petiolate, minutely punctured, apical margins of the segments fringed with white. Length 14 mm.

Hab.—Texas. Two specimens.

Agama ferruginea.—♂.—Uniform ferruginous; head not as wide as thorax, finely punctured, eyes large, prominent, tips and upper edges of mandibles blackish; flagellum of antennæ fuscous, slightly pruinose; thorax ovate, narrowed posteriorly, mesothorax with two longitudinal, parallel, impressed lines, scutellum rounded, closely punctured, metathorax coarsely reticulate, flanks punctured; wings fuscous, marginal cell ovate-lanceolate, first submarginal small, narrow, second subquadrate, receiving the first recurrent about the middle, stigma small, fusco-ferruginous; tegulæ polished, dark honey-yellow; legs thinly clothed with scattered hairs; abdomen elongate-ovate, petiolate, shining, thinly clothed with erect pale hairs, basal segment subpyriform, second minutely and remotely punctured. Length 11 mm.

Hab.—Nevada.

Myrmosa rufiventris.—♂.—Head large, black, quadrate, wider than the thorax, finely punctured, thinly clothed with erect black hairs. Eyes ovate, prominent; antennæ black, flagellum pruinose; mandibles stout, thinly clothed with pale hairs; thorax ovate, narrowed posteriorly, mesothorax with two dorsal, longitudinal impressions, scutellum convex, metathorax roundly truncate, closely and minutely punctured; wings hyaline, iridescent, marginal cell large, lanceolate, first submarginal short, second elongate subquadrate, receiving the first recurrent nervure a little before the middle, third quadrate, receiving the second recurrent about the middle; tegulæ black; legs black, slender, slightly pruinose, calcaria pale; abdomen elongate-ovate, petiolate, petiole black, remaining segments dark ferruginous, paler at sides. Length 5½ mm.

Hab.—Nevada. One specimen.

Descriptions of new North American HYMENOPTERA in the collection of the American Entomological Society.

BY E. T. CRESSON.

Family EVANIIDÆ.

Aulacus occidentalis.—♀.—Black; head subquadrate, broad behind eyes, vertex finely rugulose, behind ocelli feebly punctured; occiput sometimes tinged with ferruginous; mouth more or less dull yellowish; antennæ as long as thorax and abdomen, scape ferruginous beneath; thorax transversely wrinkled; middle lobe of mesothorax gibbous, emarginate, rounded in profile; scutellum almost smooth; wings stained with yellowish fuscous, with a brilliant violaceous reflection, a subquadrate blackish cloud beneath stigma, sometimes extending indistinctly beneath second submarginal cell, extreme apex of anterior wings fuliginous; legs ferruginous, tibiæ and tarsi generally paler, coxæ and trochanters black; abdomen as long as head and thorax, polished, ferruginous, apical segments more or less black; ovipositor as long as body. Length .55—.60 inch.

Var.—♀.—Head except band across vertex sometimes obsolete, scape, middle lobe of mesothorax, metathorax more or less, spots on pleura, and legs entirely, ferruginous. Length .50—.60 inch.

Var.—♀.—Body and legs entirely pale ferruginous, antennæ except basal joint black. Length .55 inch.

Hab.—Colorado, Nevada, (Morrison). Fifteen specimens. A fine large species, varying greatly in color.

Aulacus melleus.—♀.—Pale ferruginous, shining; face roughened, vertex and occiput feebly punctured; tips of mandibles and palpi black; antennæ as long as the body, black, basal joint ferruginous; mesothorax transversely wrinkled, the middle lobe gibbous, emarginate, rounded in profile, lateral lobes with a longitudinal deeply impressed line; scutellum subobsoletely wrinkled; wings yellowish-hyaline, with a slight violaceous reflection, a square violaceous black mark beneath stigma, extreme apex of anterior wing also black; posterior coxæ smooth and polished, incisure between posterior trochanters black; abdomen longer than head and thorax, the petiole being unusually long and slender; ovipositor much longer than body. Length .60—.65 inch.

Hab.—Nevada, (Morrison). Two specimens. Closely resembles the ferruginous variety of *occidentalis*, but the antennæ, abdomen and ovipositor are longer than in that species, and the wings are without the brilliant violaceous reflection.

Aulacus consors.—♂.—Black; face pubescent, vertex and occiput smooth and shining, mouth and scape beneath pale ferruginous; mesothorax and scutellum transversely wrinkled, the anterior lobe gibbous, slightly emarginate, rounded in profile, side lobes with a longitudinal impressed line; wings yellowish hyaline, with a subquadrate violaceous black spot beneath stigma, extreme tips of wings dusky; legs ferruginous, posterior coxæ mostly black;

abdomen ferruginous, shining, basal half of first segment above, sometimes a spot on the sides near apex, a spot on apex of second segment above, and the remaining segments except base of third segment black. Length .50—.60 inch.

Hab.—Nevada, (Morrison). Four specimens. This may prove to be the ♂ of *occidentalis* or *melleus*.

Aulacus firmus.—♀.—Black, thinly clothed with a short fine griseous pubescent, more obvious on face; head subquadrate, broad but not long behind eyes; face finely rugose, vertex and occiput feebly punctured; antennæ entirely black; mesothorax finely transversely wrinkled, middle lobe not gibbous, broadly deeply emarginate centrally, and broadly rounded in profile; scutellum wrinkled; wings hyaline, with a slight violaceous reflection, a square violaceous black spot beneath stigma, not extending beneath second submarginal cell, a small fuliginous cloud at base of first discoidal cell and another at extreme tip of wing; legs black, tibiæ more or less tinged with fuscous, the anterior pair pale in front; abdomen short, scarcely as long as thorax, petiole very short, first, second and third segments ferruginous, with a large black mark above; ovipositor as long as body. Length .55 inch.

Hab.—Colorado, (Prof. Snow). One specimen.

Aulacus montanus.—♀.—Black, thinly clothed with a short fine griseous pile, more obvious on face; head quadrate, broad and prominent behind eyes, face sparsely and finely punctured, vertex occiput and cheeks smooth and polished; antennæ as long as head and thorax, entirely black; thorax above coarsely, transversely wrinkled, middle lobe of mesothorax gibbous, subpyramidal in profile, emarginate centrally, anterior margin of prothorax with a strong acute tooth; wings hyaline slightly tinged with fuscous, an irregular violaceous black cloud beneath stigma, extending beneath second submarginal, extreme base of externo-median cell, and basal margin of first discoidal also with a blackish cloud; legs entirely black, posterior coxæ transversely aciculated; abdomen as long as head and thorax, polished, slender at base, ferruginous, base of first segment, and disk above, and the two or three apical segments black; ovipositor scarcely as long as body. Length .54 inch.

Hab.—Nevada, (Morrison). Two specimens. The anterior margin of prothorax has a strong acute tooth on each side.

Aulacus pacificus.—♀.—Black; head long behind eyes, but narrowed to posterior margin, face finely roughened, vertex and occiput smooth; mouth sometimes more or less dull yellowish; antennæ nearly as long as body, scape sometimes dull yellowish beneath; mesothorax transversely aciculated, sometimes obsoletely so, middle lobe scarcely gibbous, rounded in profile, and longitudinally grooved above anteriorly; tegulæ dull yellowish; wings hyaline, tinged with yellowish, a small fuliginous spot beneath stigma; legs pale ferruginous, inclining to dull yellow, coxæ and trochanters black, posterior femora and tibiæ sometimes more or less fuscous; abdomen about as long as head and thorax, slender at base, polished, ferruginous, first segment at base, a broad band at tip, and disk of remaining segments more or less, black; ovipositor longer than body. Length .50—.55 inch.

Hab.—Vancouver's Island, (Crotch). Four specimens.

PROCEEDINGS
OF THE
MONTHLY MEETINGS
OF THE
ENTOMOLOGICAL SECTION
OF THE
ACADEMY OF NATURAL SCIENCES,
PHILADELPHIA.

ADVERTISEMENT.

Since January 1868, the Publication Committee of the American Entomological Society have discontinued the publication of the proceedings of the meetings of the Society, although at nearly every meeting communications have been made of greater or less interest to the collector or student. These have been made public in formal papers presented in the usual manner. In 1876, the Society in its membership became a Section of the Academy of Natural Sciences, and while the corporate existence is still maintained, the scientific meetings are conducted as a Section. Two meetings are held in each year (June and December) by the members of the American Entomological Society for the transaction of its corporate and financial business. Monthly meetings are held by the Section for the reception of verbal and written scientific communications. These it is now proposed to publish, in order that the members may give notice of their proposed publications, as well as such preliminary extracts or descriptions of species as may seem desirable. These "Proceedings" are intended to accompany the "Transactions" as an appendix, and will be published as often as the material at command will admit, in a continuous manner, without further heading, until the volume of "Transactions" shall have become complete.

PUBLICATION COMMITTEE.

JANUARY 10, 1879.

Director Dr. LECONTE in the chair.

The publication committee reported favorably the following papers presented at the last meeting for publication in the Transactions of the American Entomological Society:—

"Descriptions of new species of North American Hymenoptera, by E. T. Cresson."

"Catalogue of North American Apidæ, by E. T. Cresson."

Dr. Horn exhibited two Lepidopterous insects from Costa Rica of widely separated affinities, showing between themselves a really wonderful mimicry, not only in color but also in form; so close indeed was the resemblance that either might have been placed among a number of specimens of the other, and, without a careful glance, would not be thought distinct. The one was a *Heliconia*, the other a *Callimorpha*. The group to which the former belongs is rarely or never attacked by birds, and the mimicry belongs to the "protective" class. In regard to matters of "mimicry" so called, Dr. Horn thought the idea had been and is pushed too far. Many cases of this kind should be considered Nature's reproduction of an idea, so to speak, which had been developed elsewhere, and that such instances do occur among the myriads of insects is not very remarkable. Instances of equally wonderful "mimicry" could be cited among Coleoptera where it is not protective or anything else than a mere close resemblance, for example *Amphizoa* from California, and *Nyctipetus* from South America.

The following additions to the Library of the American Entomological Society were announced:

Proceedings of the Boston Society of Natural History, vol. xix, part 4. From the Society.

Proceedings of the Zoological Society of London, 1878. From the Society.

Bulletin of the Brooklyn Entomological Society, Nos. 2 to 7. From the Society.

American Naturalist, vol. xiii, No. 1. From the Editor.

Le Naturaliste Canadien, vol. x, No. 12, vol. xi, No. 1. From the Editor.

Field and Forest, vols. i, ii, and iii. By purchase.

The Fossil Insects of the Green River Shales, by Samuel H. Scudder. From the Author.

Compte-Rendu Société Entomologique de Belgique, Série ii, No. 57. From the Society.

Essai d'une nouvelle méthode pour faciliter la détermination des espéces appartenant au genre Bombus, par O. Radoszkowski. From the Author.

FEBRUARY 14, 1879.

Director Dr. LECONTE in the chair.

Mr. Cresson exhibited the type specimens of *Catocala Editha* Edwards, and *Catocala Walshii* Edwards, which had been sent him by Mr. William H. Edwards, for the collection of the American Entomological Society.

Dr. Horn exhibited a collection of Lepidoptera made by the late Mr. W. M. Gabb, in Costa Rica, which had been beautifully set by our fellow-member Mr. C. A. Blake. This collection had been placed in Dr. Horn's hands by Mr. Gabb, in order that any desiderata might be placed in the cabinet of the American Entomological Society. The collection is principally diurnals, consisting of *Morpho*, *Papilio*, *Heliconia*, etc , with a few heterocera or nocturnals. Dr. Horn stated that the two specimens exhibited at a previous meeting, as an instance of mimicry, also belong to this collection.

Mr. Blake stated that the collection consisted of 63 genera, 142 species of Rhopalocera, and 17 genera, 27 species of Heterocera.

The following additions to the Library of the American Entomological Society were announced :—

Proceedings of the Boston Society of Natural History, vol. xx, pp. 1—80. From the Society.

Proceedings of the Linnean Society of New South Wales, vol. ii, part 4, vol. iii, part 1. From the Society.

Journal of Proceedings of the Royal Society of New South Wales, vol. xi. From the Society.

Canadian Entomologist, vol. x, No. 12, vol. xi, No. 1. From the Editor.

Bulletin of the Brooklyn Entomological Society, Dec. 1878. From the Society.

Entomologist's Monthly Magazine, No. 176. From the Conductors.

Le Naturaliste Canadien, vol. xi, No. 2. From the Editor.

Psyche, Sept. 1878, to Jan. 1879. From the Editors.

Deutsche Entomologische Zeitschrift, 22 Jahr., 2 Heft. From the Society.

Compte-Rendu Société Entomologique de Belgique, Série ii, Nos. 58 to 60. From the Society.

First Annual Report of the United States Entomological Commission for the year 1877, relating to the Rocky Mountain Locust. From the Commission.

Notes on the Aphididæ of the United States, with descriptions of species occurring west of the Mississippi, by C. V. Riley and J. Monell. From the Authors.

Communication préliminaire sur les mouvements et l'innervation de l'organe central de la circulation chez les animaux articulés; par Félix Plateau. From the Author.

March 14, 1879.

Vice-Director Dr. Horn in the chair.

Mr. Cresson made some remarks on the structure, habits and economy of species belonging to the hymenopterous family Chrysididæ, and exhibited specimens of a new species of *Euchroeus*, a genus not hitherto represented in North America. He characterized it as follows:

Euchroeus Edwardsii.—Bright metallic-green, more or less varied with blue in certain lights; head rugose; apex of clypeus, mandibles and flagellum, black; thorax coarsely and confluently punctured; postscutellum with a quadrate, transversely compressed process on the disk above; wings fusco-hyaline, paler at base; tarsi fuscous, pale at tips; abdomen subdepressed, deeply punctured, third dorsal segment with a deep, oblique, subapical groove on each side, not reaching the base of the segment, the apical margin finely and irregularly spinulose; venter piceous, polished. Length .45 inch.

Hab.—California, (Henry Edwards).

Mr. Blake exhibited a new species of *Mutilla* from Costa Rica, collected by the late Wm. M. Gabb, and characterized it as follows:

Mutilla Gabbii. ♀.—Black: head subquadrate, as wide as the thorax; two spots on vertex, transverse band on disk of mesothorax, two elongate spots on metathorax, two on disk of second abdominal segment, and sides of apical segments, clothed with a pale golden pubescence; margins of ventral segments fringed with silvery hair. Length 18 mm.

Two specimens in the collection of the American Entomological Society.

Mr. Cresson announced the completion of his Catalogue of North American Apidæ, enumerating 45 genera and 724 species; 601 species are represented in the collection of the American Entomological Society. 10 are in the collections of Belfrage and Gundlach, and 113, principally from Mexico and the West Indies, are unknown to him.

Mr. Blake called attention to the identity of *Catocala Editha* Edwards, (Trans. Am. Ent. Soc. v, 112), with *C. amatrix*, one of the most common of our species. The type of the former from Arizona, kindly presented to the American Entomological Society, by Mr. Edwards, had been carefully compared with a large number of specimens of *amatrix*, and no difference whatever was observable; it was interesting, however, as showing the geographical range of the species.

Mr. Blake also gave notice of the capture last summer of a specimen of *Papilio cresphontes* Cram., in the vicinity of Philadelphia—a very rare occurrence.

Mr. Cresson announced the death, on February 16, of Frederick Smith, the distinguished Hymenopterist of England.

The following additions to the Library of the American Entomological Society were announced:—

Proceedings of the Boston Society of Natural History, vol. xx, pp. 81—96. From the Society.

Transactions of the Wisconsin Academy of Sciences, Arts and Letters, vol. iv. From the Academy.

Bulletin of the Brooklyn Entomological Society, January, 1879. From the Society.

Entomologist's Monthly Magazine, Nos. 177 and 178. From the Conductors.

Psyche, February, 1879. From the Editors.

Cistula Entomologica, Pars xxi. By purchase.

Bullettino della Societa Entomologica Italiana, 1876—1878. From the Society.

Catalogo della Collezione di Insetti Italiani del R. Museo di Firenze. Serie 1 a Coleotteri.

Pubblicazioni del R. Istitute di Studi Superiori pratici e di perfezionamento in Firenze. Sezione di Scienze Fisiche e Naturali, vol. i. From the Society.

Horae Societatis Entomologicae Rossicae, vols. xi, xii, xiii. From the Society.

Mélanges Orthoptérologiques, par H. de Saussure. Fasc. 5 and 6, Gryllides. From the Author.

Orthoptères (Voyage au Turkestan), par H. de Saussure. From the Author.

The Natural History of Cossus Centerensis, by J. S. Bailey. From the Author.

Note on the paper, "On the Tongue (Lingua) of some Hymenoptera," by V. T. Chambers. From the Author.

Note on a Gall-Inhabiting Ant, by W. H. Patton. From the Author.

April 11, 1879.

Director Dr. LeConte in the chair.

The publication committee reported favorably the following papers presented at the last meeting for publication in the Transactions of the American Entomological Society:—

"On the Chrysides of North America, by Edward Norton."

"Catalogue of the Mutillidæ of North America; with descriptions of new species, by Charles A. Blake."

Mr. Cresson exhibited specimens of a new genus, which he named Euparagia, belonging to the family Vespidæ, and probably to the tribe Masarinæ. The general appearance of the insect is that of a very small *Vespa*, but with a larger, broader head, and more robust thorax; the antennæ are widely separated at insertion, short, clavate, with the joints distinct; head rather broader than thorax; prothorax broad and truncate in front, the angles not prominent; scutellum somewhat as in *Masaris*, rounded behind and overhanging the postscutellum; metathorax concave behind, with the lateral angles sharp; wings with an indistinct duplication, and with three submarginal cells, the second and third each receiving a recurrent nervure; legs moderately slender, tarsal claws simple; abdomen shaped much as in *Vespa*, but more rounded at base. In the ♀ the face is broad, clypeus as broad as long, obliquely narrowed to tip which is truncate; while in the ♂, the face is narrower, clypeus subquadrate, a little longer than broad, the tip deeply notched or bidentate, the antennæ longer and less clavate, and the anterior trochanters elongate, widened to tip and armed beneath with a long curved tooth or spur, which lies closely against the dilated base of the femora. The species, which is also new, he characterized as follows:

Euparagia scutellaris.—♀.—Black, head and thorax opaque; minute dot at summit of eyes, narrow upper margin of prothorax dilated into a spot anteriorly, tubercles, sometimes a rounded spot on posterior middle of mesothorax, spot at apex of scutellum, knees, base of tibiæ, and a band at tip of abdominal segments 1–6, (that on first segment slightly interrupted medially and recurved laterally, those on 2—5 dilated laterally and more or less deeply emarginate on each side anteriorly), yellowish-white; wings hyaline; abdomen smooth and shining. Length .26 inch.

♂.—Face, sides of thorax and metathorax with a pale golden pile; clypeus, mandibles except tips, dot at summit of eyes, sides of prothorax except a triangular black mark before tubercles, spot on posterior middle of mesothorax, spot at apex of scutellum, most of tegulæ, spur of anterior trochanters, tips of all the femora, the tibiæ except line at sides and beneath, and their tarsi more or less, yellow; abdomen ornamented as in ♀. Length .22—.25 inch.

Hab.—Nevada, (H. K. Morrison). Three ♀ and two ♂ specimens.

Mr. Cresson read the following descriptions of three new species of *Trigonalys*.

Trigonalys mexicanus.—♂.—Black, immaculate, clothed with a very short black pubescence; head smooth and polished, piceous; thorax and abdomen opaque, very densely and rather coarsely sculptured: wings dark fuscous, the apical third whitish hyaline, second submarginal cell narrow, pointed to base of wing, and connected with second discoidal by a short petiole, third submarginal more than twice longer than wide, receiving the second recurrent nervure near the base; legs piceous; abdomen pyriform, convex, pointed and incurved at tip. Length .60 inch.

Hab.—Mexico, (Sumichrast). Two specimens.

Trigonalys læviceps.—♀.—Black, immaculate, clothed with a very short black pubescence; head smooth and polished, piceous; thorax and abdomen opaque, densely and confluently punctured, almost granulated: wings subhyaline, with the costa broadly fuscous, covering at tip the marginal and submarginal cells, neuration much as in *mexicanus*: legs piceous, the process at tip of second ventral segment of abdomen short and truncate. Length .40 inch.

Hab.—Mexico, (Sumichrast). One specimen. Very much like *mexicanus*, but easily separated by the different ornamentation of the anterior wings.

Trigonalys nevadensis.—♀.—Black, clothed with a very short pale pubescence; head and thorax confluently punctured; basal joints of flagellum more or less dull ferruginous; tubercles, two spots on scutellum, tegulæ in part, knees, tibiæ, and base of tarsi, yellow; wings yellowish subhyaline, dusky towards tip, second submarginal cell subsessile with second discoidal, third submarginal subquadrate, rather longer than wide, receiving the second recurrent nervure a little before the middle; abdomen finely punctured, shining, a broad band at apex of second and following segments, and a triangular spot at apical corners of second ventral, yellow, the anterior margin of the yellow bands on dorsal segments uneven; the process at tip of second ventral truncate. Length .40 inch.

♂.—Ornamented like the ♀, except that the second and following ventral segments have a yellow band at tip, narrowed medially and more or less interrupted; the two yellow spots on scutellum are sometimes confluent. Length .35 inch.

Hab.—Nevada, (Morrison). Ten specimens. The neuration of the anterior wings of this species is the same as that of *pullatus* Shuck.

Dr. Horn made some remarks on the various species of *Mycterus* inhabiting the United States, showing first their trivial differences,

then insisting on the greater importance of their sexual characters as the true means of specific distinction. One new species *M. canescens* from California, was described. *Lacconotus* was also mentioned as a very closely allied genus, the sexual characters, which resemble those of *Mycterus*, were described and a new species, *L. pinicola* from Colorado and California, indicated. The family Mycteridæ was then reviewed, and the opinion expressed that it should probably become a part of the Melandryidæ. The parallelism between *Mycterus* and *Lacconotus* on the one hand, and *Rhinosimus* and *Salpingus* of the Pythidæ on the other, was spoken of, showing how the former two genera would bear the same relation to the Melandryidæ that the latter two do to the Pythidæ. Dr. Horn was willing to go a step further by advocating a remodelling of these families, expressing it as his view that no definite characters had yet been given by which the Melandryidæ and Pythidæ could be retained apart. A new species of *Nothus* (*luteus*) was also indicated. Fuller descriptions, Dr. Horn said, would be given in a paper to be presented at the next meeting.

Mr. George B. Cresson was balloted for and elected a member of the Section.

The following additions to the Library of the American Entomological Society were announced:—

Proceedings of the Academy of Natural Sciences of Philadelphia, 1878, Part 3. From the Academy.

Memoirs of the Boston Society of Natural History, vol. iii, Part 1. No. 2. From the Society.

Proceedings of the Boston Society of Natural History, vol. xx. pp. 1—128. From the Society.

Canadian Entomologist, vol. xi, No. 2. From the Editor.

Le Naturaliste Canadien, vol. xi, No. 123. From the Editor.

Bulletin of the Brooklyn Entomological Society, February and March, 1879. From the Society.

Psyche, vol. ii, No. 59. From the Editors.

Entomologist's Monthly Magazine, April, 1879. From the Conductors.

Compte-Rendu Société Entomologique de Belgique, Série ii, No. 61. From the Society.

A Century of Orthoptera, by S. H. Scudder. From the Author.

Catalogue of North American Apidæ, with descriptions of new species, by E. T. Cresson. From the Author.

Entomological Papers, by C. V. Riley. From the Author.

Annual Report of the Manchester Scientific Student's Association, 1877. From the Association.

May 9, 1879.

Vice-Director Dr. Horn in the chair.

The Publication Committee reported favorably the following papers presented at the last meeting for publication in the Transactions of the American Entomological Society:—

"Synopsis of the Monotomidæ of the United States," by George H. Horn, M. D.

"Synopsis of the Nitidulidæ of the United States," by George H. Horn, M. D.

Mr. Blake communicated the following description of a new species of Pamphila from Costa Rica:

Pamphila dukolum.—♂.—Upper side bright fulvous; primaries broadly margined with fuscous, broadest at inner angle, a bright fulvous streak on costa extending from base to near the middle, below which at base it is obscure fuscous; at the extremity of cell a fuscous patch rounded at apex and joining the costal margin; nervules fuscous; secondaries margined with fuscous, broader at costal margin and base, becoming narrower at exterior margin; disc immaculate, fringes fulvous. Under side; primaries brighter fulvous than above, paler at apex, the fuscous margin extending along interior margin to inner angle, and terminating below the middle of exterior margin, the fuscous patch at base same as above, subcostal nervules fuscous; secondaries bright yellow, with a fulvous streak extending from base to near anal angle, immaculate, fringes same as above. Thorax above fuscous; abdomen fulvous, beneath yellow; palpi fulvous mixed with grey; antennæ fuscous, the club and basal portions of the joints bright ferruginous within; legs pale fulvous. Expands 24 mm.

Hab.—Costa Rica. Collected by the late Wm. M. Gabb. Allied to *P. Zabulon*. The specific name above used has been taken from the vocabulary of one of the Costa Rican tribes, as compiled by Mr. Gabb, and signifies brownish-yellow.

Mr. E. T. Cresson exhibited specimens of several hymenopterous insects which he believed to be new, and described them as follows:

Oryssus occidentalis.—♂ ♀.—Black, opaque; head coarsely punctured, the vertex gibbous, crowned with six or seven acute tubercles encircling the lower ocellus; clypeus acutely margined at tip which is truncate; cheeks very prominent; joints 3—6 of antennæ more or less white above; thorax depressed, densely punctured; scutellum triangular, acute at tip; wings smoky beyond stigma; knees and line on outer side of tibiæ, white, tarsi fulvo-testaceous, sometimes more or less obfuscated; abdomen shining, ferruginous, basal segment black, scabrous. Length .40—.60 inch.

Hab.—Colorado, Nevada, (Morrison). Eight specimens.

Oryssus mexicanus.—♀.—Black, opaque, coarsely and confluently punctured; vertex crowned with a circular row of prominent tubercles around the lower ocellus, and between the summit of the eyes a coarse transversely rugose prominence; on each side of the face a sharply defined longitudinal carina reaching below to the acutely margined, somewhat recurved tip of clypeus, converging above and connected by a cross-carina below the lower ocellus, the surface within this oblong quadrangular enclosure is reticulated; cheeks silvery sericeous, a short acute carina on each side above base of mandibles; posterior margin of prothorax above silvery-sericeous; a longitudinal shining ridge on disk of mesothorax and another shorter and less distinct on each side over the tegulæ; scutellum rounded at tip; wings fusco-hyaline, a subhyaline space beneath stigma; tibiæ piceous, tarsi dull ferruginous; abdomen rather shining, basal margin of the segments rufo-testaceous. Length .60 inch.

Hab.—Mexico, (Sumichrast). One specimen.

Cleptes purpurata.—♀.—Purple, changing to blue, shining; head and thorax sparsely punctured, thinly clothed with erect black pubescence; scape black, flagellum brown, sericeous; prothorax green; longitudinal lines on mesothorax deeply impressed; metathorax coarsely rugose, longitudinally so at base above, lateral angles subacute; tegulæ piceous; wings pale fuscous; legs black or piceous; abdomen flattened, ovate, smooth and shining, minutely punctured, black, changing to purple in certain lights, thinly clothed with short black pubescence. Length .30 inch.

Hab.—Vancouver's Island, (Henry Edwards). One specimen.

Cleptes americana.—♂ ♀.—Green, blue or purple, sparsely punctured, thinly clothed with black pubescence; antennæ black, scape sometimes blue or green, flagellum sericeous; thorax strongly punctured, longitudinal lines on mesothorax well impressed; metathorax reticulated, sometimes longitudinally rugose at base above, lateral angles acute; tegulæ black or piceous, sometimes æneous; wings pale fuscous; tibiæ and tarsi black or piceous; abdomen flattened, smooth and shining, feebly punctured, thinly pubescent, black, changing to green, blue or purple in certain lights. Length .20—.23 inch.

Hab.—Colorado, Nevada. Fourteen specimens.

Mr. Cresson stated that the species described by him at a former meeting as *Euchroeus Edwardsii*, should have been referred to *Parnopes*, also a genus not hitherto represented in North America.

Rev. Mr. McCook exhibited some microscopic slides containing thin sections of the mandibles of the Agricultural Ant of Texas, (*Pogonomyrmex barbatus*), showing the loss of substance by wear on the sharp edges of the teeth. These slides served to illustrate his views that, while the teeth of the mandibles in some specimens may be naturally more acute than in others, the great amount of rounding seen in the specimens of older individuals is the result of natural wear as in the teeth of higher animals. The same fact was also illus-

trated in the mandibles of *Pasimachus* and other coleoptera as well as in other members of the body exposed to wear.

Mr. McCook exhibited the nest (Fig. 2), of a Lycosid spider which is probably a new species of the genus *Tarentula*. It was discovered July 26, 1878, on the grounds of Mrs. Mary Treat, at Vineland, N. J., and being carefully dug up was successfully transported and added to his collection of Insect architecture. It is a tube about 7½ inches deep, resembling an ear-trumpet (Fig. 1), with the mouth upward. It is bent at an angle of 60° shortly below the surface; the upper part is a silk-lined funnel, that widens outwardly to the margin, which at the highest point is 1¼ inches above the surface of the ground. The silken lining extends but a little way below the surface. The projecting funnel is composed of blades of grass (Fig. 2), which are bent down upon their stalks from all sides, overlaid, and rudely interwoven, making thus a background upon which the smooth silken lining is placed. The longest diameter of the mouth of the tube (Fig. 1), *ab*, is 1½ inch, the shorter diameter *cd*, is 1¼ inch. The diameter of the tunnel below the surface is ⅝ inch. The ♀ found with this nest is a large example, 1 inch long, of a dark purplish-brown color, marked across the abdomen with yellowish bars, having on the legs and palpi annuli of the same color. The species was provisionally named *Tarentula tigrina*, and further description reserved.

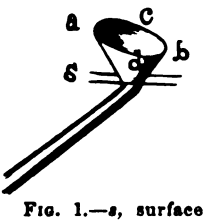


Fig. 1.—*s*, surface of ground. *abcd*, silk-lined funnel.

Fig. 2.—Nest of *Tarentula tigrina* (?).

Dr. Horn called attention to several coleoptera, as follows:

Cantharis deserticola Horn, originally described from a ♀ was supposed to belong to the group with the antennæ similar in the sexes. A male recently received proved to have the antennæ thickened in the middle, it therefore belongs to "Group 1" and most closely allied to *C. tenebrosa* Lec., but abundantly distinct by color and sculpture.

Mycetina limbata Horn, described from a specimen with the spots confluent so that the disc of elytra was piceous and the margin pale. Specimens recently received show it to have markings exactly like *Endomychus biguttatus*, that is, elytra red with two oval black spots on each.

Dasycerus sulcatus Brongn.—A specimen not differing from the figures and descriptions of this European insect has been sent from North Carolina.

Adelops hirtus Tellk.—The tarsi are five jointed on all the feet while in the European species the tarsi are 4—5—5.

Sarpedon scabrosus Bonv.—Mr Ulke has loaned me what seems to be the male of this species. The antennæ are bipectinate from the third to the tenth joints, the branches of moderate length but shorter on the third. The eleventh joint is not straight but flexed. The pectinations do not arise opposite on the joints, the anterior branch being at the distal end of the joint, while the posterior branch proceeds from the base.

Dr. Horn also made some remarks on the two papers on which a favorable report had just been made. He spoke of the exclusion of *Cybocephalus* and *Rhizophagus* from the Nitidulidæ by Mr. Murray, and gave his reasons why he did not adopt the views of that author, who excluded the former genus because it had not a family resemblance and had four jointed tarsi. The first objection Dr. Horn thought entirely insufficient and the latter while having some weight should be disregarded, because such a precedent would necessitate the establishment of new families in nearly all the large families as now recognized, from the Dytiscidæ down. The Monotomidæ as restricted in the "Classification" were also reviewed and the opinion expressed that they would probably have to be reunited with the Lathridiidæ.

The following additions to the Library of the American Entomological Society were announced:—

Proceedings of the Monthly Meetings of the Entomological Section of the Academy of Natural Sciences, Philadelphia, pp. i.—viii. From the Section.

Canadian Entomologist, vol. xi, No. 3. From the Editor.

Report of the condition and progress of the Davenport Academy of Natural Sciences, January 1, 1879. From the Academy.

The Natural History of the Agricultural Ant of Texas, by H. C. McCook. From the Author.

Psyche, vol. ii, No. 60. From the Editors.

Journal of the Cincinnati Society of Natural History, January, 1879. From the Society.

Le Naturaliste Canadien, vol. xi, No. 124. From the Editor.

Compte-Rendu Société Entomologique de Belgique, Série ii, No. 62. From the Society.

The Silkworm, being a brief Manual of Instructions for the production of Silk. By C. V. Riley. From the Author.

JUNE 9, 1879.

Vice-Director Dr. HORN in the chair.

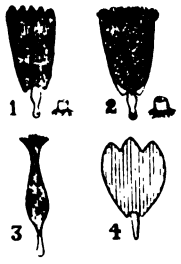
The Publication Committee reported favorably the following paper presented at the last meeting for publication in the Transactions of the American Entomological Society:—

"Notes on the Mycteridæ and other Heteromera of the United States," by George H. Horn, M. D.

Mr. Blake exhibited some very fine specimens of rare Lepidoptera, among which were *Urania Leilus*, *U. Braziliensis*,? and *Cydimon Boisduvalii*, from Central America; *Thaliura* (*Urania*) *Ripheus*, from Madagascar; *Morpho Cypris* ♂, and *M. Sulkowskyi*, from New Granada; *Argynnis Nokomis* ♂ and ♀, *Argynnis Leto* ♂ and ♀, and *Platysamia Gloveri*. Also ♂ and ♀ *Actias Luna*, and *Junonia Lavinia*, showing abberrations from the normal form. The ♂ *A. Luna* having on the left primary, midway between the usual discal spot and apex, and about one-eighth of an inch beneath the costal margin, an irregularly ovate ocellus with crimson centre, deeply emarginate without, surrounded with pale yellow, which in turn is margined with a fine line of the usual chocolate color of costa. The vitreous portion of the discal spot is also broadly margined internally with crimson, and the branch connecting it with costa broadly suffused. The ♀ has the discal spots on primaries very broadly diffused and irregular, that on the right side throwing out two short, obtuse branches toward the apex; that on the left side is more broadly diffused, and suffused with crimson, more irregular in form, and somewhat larger than the other; the external crimson lines outside the vitreous portion very distinct. The nervules are all of the same color as the costa. The ocelli on secondaries are larger than usual, and broadly suffused beneath the vitreous spot with pink. Both specimens emerged from the cocoon

June 2d. *Junonia Lavinia:* the entire insect above darker than usual. Beneath, the median band on primaries is quite white, with the usual ocellus very distinct, the apex deep ferruginous; the secondaries uniformly deep ferruginous with the ordinary spots faintly visible.

Mr. Blake also made some remarks on the form of the scales of *Morpho Cypris* and *M. Sulkowskyi*, and exhibited drawings of the same; he stated that the stems of the scales, as seen under the microscope, showed the attachment to the membrane of the wing to be similar to a ball and socket joint. Prof. Westwood also mentions a similar arrangement in the scales of the "rugose portion" of the wing of *Hipparchia Semele*. Mr. Blake had examined the scales of the last named species, but failed to find the stems as distinctly balled at the insertion as those of the species of *Morpho* above mentioned. Fig. 1, represents a magnified scale of *Morpho Sulkowskyi;* 2, of *M. Cypris;* 3, of *Hipparchia Semele*, from the rugose portion, the extremities of the scales being tufted with hairs; 4, normal form of the scale of *H. Semele*. The small figures on the right show the socket attached to the membrane of the wing, in which the stems are inserted.



Dr. Horn made the following communication on the Elaterids.

The species of ADELOCERA in our fauna divide into three series as follows:

Prothoracic tarsal grooves deep, distinctly limited, uniting posteriorly with the antennal groove.....1.

Prothoracic grooves feebly impressed, neither distinctly limited nor joining the antennal grooves.....2.

Prothoracic grooves entirely absent .....3.

The first series contains species separable as follows:

Punctures of elytra in regular rows; median impression of thorax feeble. 12. **impressicollis.**

Punctures dense, not in series; thoracic impression deep.

Elytra gradually narrowed from base to tip; surface marmorate with brown and luteous.....7. **marmorata.**

Elytra parallel, narrowed at apical third.

Surface black with white scales very sparsely placed.....6. **sparsa.**

Surface densely clothed with fulvous scales.....5. **pyrsolepis.**

The species of the second series are known as follows:

Elytra with punctures in rows; prothoracic channel almost entirely obliterated; surface sparsely scaly.....13. **modesta.**

Elytra with confused punctuation.
Tarsal grooves long, continued anteriorly parallel with the suture. Thoracic channel feeble.....11. **discoidea.**
Tarsal grooves short, oblique.
Thoracic channel broad and deep. Surface moderately densely clothed with fulvous scales.....4. **rorulenta.**
Thoracic channel rather feebly impressed.
Elytra with white scales sparsely placed.....10. **anrorata.**
Elytra marmorate with brown and luteous.....8. **maculata.**

The species of the third series are as follows:

Elytra with convex disc, thorax feebly channeled, antennal groove long, reaching the coxa.....9. **avita.**
Elytra with depressed disc. Thorax broadly channeled, antennal groove abbreviated posteriorly.
Thoracic impression entire, extending from base to apex, hind angles divergent.....1. **obtecta.**
Thoracic impression broad, but basal only, hind angles not divergent.
Hind angles compressed, pseudo-carinate.....2. **brevicornis.**
Hind angles not compressed.....3. **profusa.**

The numbers give a better cabinet arrangement and place the species in a series in which their superficial relationships are shown.

2.—A. BREVICORNIS and PROFUSA are very closely related and may in the future be united.

5.—A. PYRSOLEPIS resembles RORULENTA superficially very closely, but Mr. Ulke who has the type informs me that the tarsal grooves are as well marked as in *sparsa*.

13.—A. MODESTA Boisd.—A specimen of this species was given me in Paris, said to have been collected in the Peninsula of California, and as it occurs in Mexico, and shows a tendency to acclimate itself in the warmer countries around the entire globe, it is possible that the locality given me is accurate. For its determination I am indebted to Dr. Candeze.

The following changes and synonymy are noted:

Alaus LUSCIOSUS Hope, should replace *goryops* Lec.

Cardiophorus *Dejeanii* Lec., is an immaculate variety of CARDISCE Say.

C. *amictus* Mels., appears to be CONVEXUS Say.

C. *mimeticus* Horn, is a color variety of EDWARDSI Horn.

Cryptohypnus *nocturnus* Esch., and *lucidulus* Mann., do not seem specifically distinct from BICOLOR Esch. Other synonyms of this species are already noticed in the Check List.

C. *colon* Horn, is a variety of ORNATUS Lec., with two spots only. It may be entirely black.

Elater SEMIVITTATUS Say. To this species *Corymbites tristis* Cand., should probably be referred.

E. *Sayi* Lec., seems not distinct from MILITARIS Harris.

E. *socer* Lec., is IMPOLITUS Mels.

E. *manipularis* Cand., is HEPATICUS Mels.

E. *molestus* Lec., is LUCTUOSUS Lec.

E. *fuscatus* Mels., is PEDALIS Germ., which seems to be only NIGRICANS Germ.

E. *lacustris* Lec., is PULLUS Germ.

E. *palans* Lec., seems not distinct from COLLARIS Say.

E. *delctus* and *fusculus* Lec., are color variations and very doubtfully different from MIXTUS Hbst.

In Elater there is much other synonymy caused by the separation of species from color alone. These will be given after a closer study of true specific differences.

Anchastus FUSCUS Lec., is an Ischiodontus.

A. *longulus* Lec., is the male of DIGITATUS Lec.

Ischiodontus *oblitus* Cand., appears to be SIMPLEX Lec.

Melanotus *cuneatus*, *incertus* and DECUMANUS Lec., seem not to differ.

M. *tenellus* Er., is INSIPIENS Say.

Limonius *pubicollis* Lec., is AURIPILIS Say.

L. *Ulkei* Horn, is the female of MIRUS Lec.

L. *semiæneus* Lec., is BASILLARIS Say, with pale elytra.

L. *ectypus* Say, is AGONUS Say.

L. QUADRIMACULATUS Horn, should be referred to Megapenthes.

Athous *reflexus* Lec., is RUFIFRONS Rand., of uniform brown color.

A. DEBILIS Lec., is a Monocrepidius.

A. *maculicollis* Lec., and *flavangularis* Horn, are color varieties of ACANTHUS Say.

A. BICOLOR Lec., and DISCALCEATUS Say.—In these two species the prosternal sutures are double, and excavated in front as in many Limonius, differing in this respect from all the others in our fauna. A similar occurrence of double sutures is found also in Corymbites SULCICOLLIS and RUPESTRIS, in which the tarsi also vary from the normal type and approach Asaphes.

The above synonymy is such as has been noticed in a rearrangement of the species of my cabinet to this point. It is my desire to present from time to time tables of the genera, the great accumulation of material now rendering it possible to arrive at some idea of what constitutes a species.

Mr. E. T. Cresson exhibited specimens of several new species of Hymenoptera contained in the collection of the American Entomological Society, and characterized them as follows:

Ibalia rufipes.—♀.—Black, face and cheeks aciculated, a carina extending from lower ocellus to base of antennæ, mandibles piceous; thorax above transversely wrinkled, upper margin of prothorax strongly carinate and slightly emarginate medially; scutellum coarsely rugose, apex emarginate; pleura shining, almost smooth; tegulæ piceous; wings dusky, nervures and stigma black; legs ferruginous, coxæ, trochanters and posterior tibiæ except extreme base, black; abdomen fulvo-ferruginous, semi-transparent, upper edge dusky, sides varied with yellow. Length .45 inch.

Hab.—Nevada. H. K. Morrison.

Ibalia montana.—♀.—Head, pro- and mesothorax, and spot beneath tegulæ luteo-fulvous; mouth, antennæ, anterior middle of prothorax, scutellum, metathorax and pleura, black; mesothorax transversely wrinkled, upper margin of prothorax strongly carinate and slightly emarginate centrally; scutellum coarsely rugose, apex deeply emarginate; wings hyaline, slightly dusky, nervures and stigma black; legs ferruginous, tarsi paler, posterior tibiæ dusky; abdomen nearly twice the length of head and thorax, upper and lower margins parallel, fulvo-ferruginous, varied with fuscous, especially posteriorly, sides of middle and venter pale luteous, semi-transparent. Length .56 inch.

Hab.—Colorado. H. K. Morrison.

Aulacus pallipes.—♂.—Small, black; head subglobose, broad behind eyes; face beneath antennæ, spot beneath eyes, mandibles except tips, antennæ and legs except coxæ, yellow; antennæ nearly as long as the body, dusky at base above; mesothorax very feebly rugose, rounded in front, not emarginate; sides of pleura stained with dull yellowish; wings hyaline, nervures and stigma dull ochraceous; abdomen robust, about as long as head and thorax, slender at base, first and second segments except base, and the venter, ferruginous. Length .26 inch.

Hab.—Massachusetts. James Ridings.

Pterochilus miraudus.—♀.—Large, black; clypeus narrow, lower anterior orbits, broad posterior orbits, dot near summit of eyes, small transverse spot between antennæ, mandibles except tips, scape beneath, broad upper margin of prothorax, tubercles, large rounded spot beneath tegulæ confluent with an oblique stripe nearly reaching middle coxæ, two large square spots on scutellum, postscutellum, metathorax except rather broad median black stripe, and most of tegulæ, all sulphur-yellow; clypeus subrhomboidal, subconvex, tip truncate, labial palpi honey-yellow, fringed with long pale hair; wings subhyaline with a violaceous reflection, stained with yellow along costa, extreme apical margin dusky; legs black, most of coxæ beneath, most of four anterior femora, tips of posterior pair, all the tibiæ and most of tarsi, yellow; abdomen sulphur-yellow, sericeous; central stripe on base of first segment ending in a spot on disk, base more or less of remaining segments, transverse line on disk of second segment connected with band at base by a short more or less broad median line, margins of apical segment, and base of two or three basal segments of venter, black. Length .80 inch.

♂.—Clypeus, mandibles, dot between antennæ, narrow line on each side, narrow line on posterior orbits, scape beneath, upper margin of prothorax indented each side, spot beneath tegulæ, line on postscutellum, two spots on metathorax, legs except four anterior femora behind and posterior femora at base and beneath, lateral and apical margin of segments one and two of abdomen, apical margin of three to six, large spot on sides of two, spot near tip of apical segment, most of first ventral, the second except base, and apical margin of remaining segments, all sulphur-yellow; anterior margin of apical bands on third and fourth dorsal segments notched on each side anteriorly; clypeus longer than broad, sericeous, apical margin narrow, truncate; flagellum fulvous beneath, apical joint black, not hooked. Length .65 inch.

Hab.—Nevada. H. K. Morrison.

Pterochilus decorus.—♀.—Medium, black; clypeus, dot above, mandibles except tips, anterior orbits, line behind eyes, scape beneath, broad upper margin of prothorax, spot on sides of scutellum, postscutellum, large spot on sides of metathorax, small spot on extreme sides, round spot beneath wings, small one behind it, and the tegulæ, sulphur-yellow; clypeus subrhomboidal, depressed towards tip which is truncate; tips of mandibles reddish-brown, labial palpi pale ferruginous, fringed with long pale hair; wings subhyaline, stained with yellowish-fuscous along costa and at tip; legs yellow, coxæ, except spot on two posterior pairs beneath, trochanters, line on anterior femora above, and the two posterior pairs, except tips, black, anterior femora before, and most of the tarsi dull fulvous; abdomen ovate, feebly punctured, subopaque, first segment of abdomen, except large subtrefoil black spot on disk, connected with base by a narrow line, rather broad apical margins of remaining segments, broad lateral margin of second segment acutely produced within nearly to the disk, and most of the venter, sulphur-yellow. Length .50 inch.

Hab.—Nevada. H. K. Morrison.

Pterochilus zonatus.—♂.—Medium, black; clypeus, spot on mandibles, narrow lower orbits, line on posterior orbits, short line or two spots between antennæ, scape beneath, upper anterior margin of prothorax, tegulæ except median dot, spot beneath, dot on sides of scutellum, postscutellum, spot on each side of metathorax posteriorly, tips of femora more or less, tibiæ and tarsi, two spots at base of first segment of abdomen, and rather narrow apical margin of all the segments above and beneath, bisinuate or biemarginate anteriorly, all pale yellow; clypeus seven-sided, as long as broad, smooth, tip slightly emarginate; antennæ long, robust especially towards tip, flagellum pale fulvous beneath, spotted at apex with black, apical joint truncate, not hooked; wings stained with yellow, nervures pale ferruginous or fulvous; abdomen narrowed at base, the segments smooth at base, sparsely punctured at apex, first segment campanulate. Length .50 inch.

Hab.—Nevada H. K. Morrison.

Pterochilus comptus.—♀.—Medium, black; head broader than thorax; clypeus, mandibles except tips, palpi, lower anterior orbits, posterior orbits, two nearly confluent dots between antennæ, scape beneath, broad upper margin of prothorax, tubercles, tegulæ, two spots on scutellum, postscutellum, sides of metathorax, broad oblique subinterrupted line on sides of pleura, spot on under side, legs except four anterior femora above and posterior pair except

tips, apical and lateral margins of first segment of abdomen, broad apical margin of remaining segments, that on the second broadly dilated on each side of middle, and the venter entirely except base of second segment, all sulphur-yellow; clypeus large, broad, convex, broadly rounded at tip, labial palpi fringed with long pale hair; flagellum fulvous beneath; vertex rather thickly clothed with pale pubescence; anterior angles of prothorax tuberculate; wings hyaline, costa yellow, extreme apex narrowly fuliginous; abdomen shining, sparsely punctured, first segment subcampanulate. Length .45 inch.

Hab.—Nevada. H. K. Morrison.

Pterochilus Morrisoni.—♀.—Small, black, opaque; head broader than thorax; clypeus except sometimes at tip, mandibles, palpi, lower anterior orbits, broad posterior orbits, scape beneath, upper margin of prothorax, tegulæ, two square spots on scutellum, postscutellum, two spots on metathorax, broad oblique subinterrupted line on sides of pleura, spots on middle coxæ beneath, anterior femora except base above, intermediate pair at tip beneath, tips of posterior pair, tibiæ and tarsi, and broad apical margin of abdominal segments, that on second widened laterally, all sulphur-yellow; clypeus subrhomboidal, subdepressed towards tip which is broadly truncate; labial palpi fringed with long pale hair; flagellum more or less fulvous, generally fuscous above; wings subhyaline, costa yellowish, apex smoky; abdomen closely punctured, first segment campanulate. Length .30—.35 inch.

♂.—More slender, eyes larger, face narrower; clypeus and mandibles entirely yellow; antennæ long and robust towards tip, which is incurved but not hooked, flagellum pale fulvous beneath and at extreme tips above; all the coxæ more or less yellow; otherwise like the ♀. Length .30 inch.

Hab.—Nevada. H. K. Morrison.

Pterochilus biplagiatus.—♀.—Medium, black; clypeus except narrow apical margin, dot on base of mandibles, spot on lower anterior orbits, line on upper posterior orbits, two dots above base of antennæ, scape beneath, upper margin of prothorax, tegulæ except median dot, round spot beneath, two spots on scutellum, postscutellum, spot on each side of metathorax posteriorly, tip of femora, tibiæ except spot behind, tarsi, apical margin of abdominal segments 1—5 widened laterally, those on 2—5 more or less deeply emarginate on each side anteriorly, spot on sides of first segment at base confluent with lateral margin, an ovate spot on sides of second segment, spot on apical segment, and narrow apical subinterrupted margin of ventral segments 2—4, all pale yellow; clypeus subrhomboidal, truncate at tip, mandibles dull reddish at tip; labial palpi dull fulvous, fringed with pale hair; mesothorax densely confluently punctured; wings yellowish-subhyaline; abdomen shining, almost smooth, impunctured, first segment broad. Length .50 inch.

♂.—More slender, head and thorax clothed with pale pubescence; clypeus entirely, mandibles except tips and palpi yellow; antennæ long, robust towards tip which is incurved but not hooked, flagellum entirely black; coxæ, trochanters, four anterior femora except base above, tips of posterior pair, and tibiæ and tarsi entirely, yellow; venter mostly yellow; otherwise much like the ♀. Length .45 inch.

Hab.—California. Henry Edwards.

The following additions to the Library of the American Entomological Society were announced:

Proceedings of the Academy of Natural Sciences of Philadelphia, 1879, Part 1. From the Academy.

Proceedings of the Monthly Meetings of the Entomological Section of the Academy of Natural Sciences, Philadelphia, pp. ix.—xii. From the Section.

Bulletin of the Essex Institute, vol. x, Nos. 10—12. From the Institute.

Bulletin of the Brooklyn Entomological Society, April, 1879. From the Society.

Proceedings of the Zoological Society of London, 1878, part 4. From the Society.

Entomologist's Monthly Magazine, No. 180. From the Conductors.

Canadian Entomologist, vol. xi, No. 4. From the Editor.

Le Naturaliste Canadien, vol. xi, No. 125. From the Editor.

Annales de la Société Entomologique de France, Série 5, tome 4—7. From the Society.

Annales de la Société Entomologique de Belgique, tome 21, No. 3, 22, No. 1. From the Society.

Compte-Rendu Société Entomologique de Belgique, Série ii, No. 63. From the Society.

Transactions of the Kansas Academy of Sciences, 1873—1878. From the Academy.

Hymenoptera Scandinaviæ auctore C. G. Thomson. Tom 5. By purchase.

Two interesting American Diptera, Glutops singularis and Epibates Osten-Sackenii, by Edward Burgess. From the Author.

The Anatomy of the head and the structure of the maxilla in the Psocidæ, by Edward Burgess. From the Author.

The insects of the Tertiary Beds at Quesnel, (British Columbia), by S. H. Scudder. From the Author.

Descriptions of new genera and species of Isopoda from New England and adjacent regions, by Oscar Harger. From the Author.

Quelques conseils aux chasseurs d'insectes, par A. Preudhomme de Borre. From the Author.

Note sur des difformités observées chez l'Abax ovalis et le Geotrupes sylvaticus, par A. Preudhomme de Borre. From the Author.

Sur l'œuf et la jeune larve d'une espéce de Cyphogrania, par A. Preudhomme de Borre. From the Author.

Synopsis of the MONOTOMIDÆ of the United States.

BY GEORGE H. HORN, M. D.

This family contains a small number of genera in which the anterior coxæ are small and round, without trochanters, their cavities widely closed behind. Middle coxæ small, round, closed by the mesosternal epimera. Posterior coxæ transversely oval. Abdomen with five free ventral segments, the first and fifth elongated, the intermediate three shorter and equal. Tarsi three-jointed, last joint longer than the others united. Claws simple. Antennæ ten-jointed, club of either one or two joints. Maxillæ bilobed. Labrum almost entirely concealed by the epistoma. Elytra truncate, pygidium exposed.

The males have a small additional segment as in the Rhizophagini.

The differences between the genera composing this family and the Lathridiidæ seem to be narrowed down to — elytra truncate and pygidium exposed. I am unable to find that any more definite characters have been given by authors, and my studies of the genera of Lathridiidæ as restricted by Dr. Leconte are not so thorough as to warrant any definite expression of opinion, but I am inclined to adopt the views of Lacordaire and the Catalogus Gemm. et Har., where the genera here included are placed among the Lathridiidæ. A further discussion of this subject is deferred until an opportunity is afforded for revising *Lathridius* and its closely allied genera.

It is surprising what differences of opinion prevail in the books regarding the number of the tarsal joints. Lacordaire and Erichson say three, Aubé and Motschulsky four, Redtenbacher 3—4—4, Leconte five. My own observations are in accord with Erichson.

The following arrangement of the genera is proposed:

Head slightly prolonged behind the eyes, then suddenly constricted.....2.
Head parallel behind the eyes, not at all constricted.....5.
2.—Intercoxal process of abdomen broad, feebly rounded in front.....3.
Intercoxal process triangular, acute.....4.
3.—Terminal joint of antennæ suddenly broader, joint nine not wider than eight.....**MONOTOMA.**
Last two joints enlarged.
Ninth joint as wide as the tenth. Elytra irregularly punctured. **PHYCONOMUS.**
Ninth joint not as wide as tenth. Elytra punctured in striæ. **HESPEROBÆNUS.**
4.—Ninth joint as wide as tenth. Elytra punctured in striæ.....**EUROPS.**
5.—Last joint of antennæ suddenly enlarged, ninth not wider than eighth. Elytra punctured in striæ.....**BACTRIDIUM.**

Species occur in each of the genera on both sides of the continent except *Phyconomus*, which occurs on the sea-shore of the Pacific only.

The sequence of genera in the above table is different from that adopted in the "Classification," as it seems to show a certain relationship with the Nitidulidæ through *Bactridium*, and to the Lathridiidæ through *Monotoma*, the other genera being very natural intermediates between these two.

MONOTOMA Hbst.

Head slightly prolonged behind the eyes, then suddenly constricted. Antennæ ten-jointed, last joint suddenly broader, ninth joint not wider than the preceding. Elytra with rows of punctures each bearing a short hair. Intercoxal process broad, feebly rounded in front, first ventral segment without coxal lines.

The species of this genus are much more difficult to separate than those of any other in the family, on account of the similarity of form and sculpture and the tendency to become coated with extraneous matters, which adhere to and hide to a greater or less extent the surface and are troublesome to remove.

The head is usually densely punctured, the punctures coarse and deep, each bearing a very short whitish hair.

The thorax is similarly sculptured, and has near the base two foveæ more or less marked, often very feeble. One species has four excavations. In shape there is a moderate variation. The usual form is narrowed in front, but species occur with the sides parallel or even slightly convergent posteriorly. The anterior angles may be prominent or not. The hind angles are also variable, usually rectangular and moderately prominent, often feeble or even obliterated.

The elytra vary somewhat in sculpture. One species has simple punctures, the others have punctures more or less muricate, especially near the base.

The underside of the body varies in sculpture from a coarse punctuation almost to smoothness and is a useful character in defining species.

The following table gives in brief the principal characters of the species and will enable them to be easily distinguished.

Antennæ slender, joints 4—9 longer than wide.....**producta.**
Antennæ stouter, joints 4—9 submoniliform.....1.
1.—Metasternum densely punctured at middle and sides.....2.
Metasternum nearly smooth at middle and posteriorly.....6.
2.—Head rather deeply obliquely impressed on each side.....**picipes.**
Head regularly convex, not impressed.....3.

3.—Thorax (as limited by the angles), longer than wide.....**fulvipes.**
Thorax nearly square, or even slightly wider than long.....4.
4.—Thorax quadrifoveolate.....**quadrifoveolata.**
Thorax at most feebly impressed posteriorly.....5.
5.—Thorax distinctly wider posteriorly, hind angles prominent...**americana.**
Thorax parallel, hind angles not prominent.....**parallela.**
6.—Thorax moderately densely punctured, opaque.
First segment of abdomen distinctly punctured.....**muncida.**
First segment nearly smooth.....**texana.**
Thorax moderately shining, sparsely punctate, narrow posteriorly. Elytra with rows of fine, simple punctures.....**longicollis.**

In the Bull. Mosc. 1868, iii, p. 199—200, Motschulsky in a few words indicates the following species as occurring in our fauna, *fulvipennis*, *subnigra*, *parallelocollis* and *corpulenta*, the last two from New Orleans. The few notes are not at all adequate for their recognition and they cannot be considered as described species, I think under the circumstances it is better to drop them entirely.

M. producta Lec. Proc. Acad. 1855, p. 305.—Elongate, black, opaque, sparsely clothed with short white hair, antennæ and legs rufous. Head coarsely and densely punctured. Thorax longer than wide, gradually wider posteriorly, anterior angles obtuse not prominent, hind angles slightly prominent, disc moderately convex with a vague impression on each side of middle of base, surface coarsely and densely punctured, margin finely crenate. Elytra substriate, striæ with coarse punctures, submuricate at base becoming finer toward the apex. Body beneath black, opaque, coarsely and moderately densely punctured. Length .12 inch; 3 mm.

In the male the metasternum is broadly concave, the first ventral less broadly but rather more deeply concave, the terminal ventral not impressed.

This species is the most elongate in our fauna and is easily known by the structure of the antennæ. It should be compared with the European *angusticollis*.

Occurs in the Middle States region.

M. picipes Hbst. Käfer v, 24, pl. 46, fig. 2; *foveata* Lec. Proc. Acad. 1855, p. 305.—Moderately elongate, black or brownish, opaque; antennæ and legs rufous. Head densely and coarsely punctured, on each side rather deeply obliquely impressed. Thorax slightly longer than wide, sides finely crenate and very slightly diverging posteriorly, anterior angles obtusely prominent, hind angles small scarcely prominent, disc moderately convex, coarsely and densely punctured and slightly foveate at base on each side of middle. Elytra with striæ of moderate punctures, not closely placed and slightly submuricate at base. Body beneath moderately coarsely and densely punctured, first ventral more coarsely than the following. Length .08 inch; 2 mm.

In the male the first ventral is slightly concave the last ventral not impressed.

The surface is sparsely clothed with short whitish hairs as is usual in the genus. Its special distinctive character is in the impression of the head.

Occurs from the Middle States to Texas and California, probably introduced from Europe.

M. fulvipes Mels. Proc. Acad. ii, 111; Lec. Proc. Acad. 1855, p. 305; *opaca* Zieg. Proc. Acad. ii, 271.—Moderately elongate, black, subopaque, elytra often paler, legs and antennæ rufous. Head coarsely and densely punctured, not impressed. Thorax longer than wide, narrower in front, sides straight and finely crenate, anterior angles obtusely prominent, hind angles not prominent, disc convex, coarsely and densely punctured, bi-impressed at base. Elytra with striæ of fine, very feebly submuricate punctures, nearly equal in size at apex and base. Body beneath moderately coarsely and densely punctured, abdomen less evidently punctured. Length .08 inch; 2 mm.

This species resembles *picipes* but the head is not impressed. The form of its thorax recalls that of *productum*.

Occurs from Pennsylvania to Illinois.

M. quadrifoveolata Aubé, Ann. Ent. Soc. France, 6, p. 468, pl. 17, fig. 9; Motsch., Bull. Mosc. 1837, p. 115, pl. 7, fig. c.—Elongate, ferruginous, subopaque. Head coarsely and not densely punctured. Thorax as wide as long, sides finely crenate, straight and very slightly divergent posteriorly, anterior angles obtuse, not prominent, hind angles rectangular, moderately prominent, disc coarsely and densely punctured and with four rather deep impressions, the anterior and posterior on each side united by an intermediate groove. Elytra rather finely submuricately punctured at base, punctures becoming rapidly finer and more distant toward the tip. Body beneath moderately densely punctured, abdomen less coarsely punctured than the metasternum. Length .08 inch; 2 mm.

In the male the metasternum has a very feeble depression, the first ventral more distinctly concave, the last ventral is simple.

Occurs in the District of Columbia, (Ulke).

M. americana Aubé, Ann. Ent. Soc. Fr., 6, p. 461, pl. 17, fig. 5; Lec. Proc. Acad. 1855, p. 305.—Moderately elongate, black, subopaque, antennæ and legs rufous. Head coarsely and densely punctured, not impressed. Thorax distinctly wider than long, anterior angles obtuse, hind angles rectangular, moderately prominent, sides subcrenate, straight, moderately divergent posteriorly, disc convex, coarsely and densely punctured and with scarcely a trace of basal depressions. Elytra rather coarsely submuricately punctured, punctures somewhat finer at apex. Body beneath coarsely and moderately densely punctured. Length .08 inch; 2 mm.

The metasternum of the male is very slightly concave, the first ventral more distinctly concave, the last ventral with an oval flattened space.

Occurs from Pennsylvania to Illinois, Florida, Texas and Arizona.

M. parallela Lec., Proc. Acad. 1855, p. 305.—Moderately elongate, black, opaque, antennæ and legs rufous. Head coarsely and densely punctured, not impressed. Thorax nearly square, sides parallel, angles not prominent, disc

moderately convex, at base vaguely impressed, coarsely and densely punctured. Elytra with striæ of moderately fine submuricate punctures which become finer and more distant toward the tip. Body beneath densely and moderately coarsely punctured, the first ventral as coarsely and densely as the metasternum. Length .08 inch; 2 mm.

The metasternum of the male is slightly flattened, the first ventral vaguely concave, the last ventral simple.

Occurs in New York, Michigan and Canada.

M. mucida Lec., Proc. Acad. 1855, p. 305.—Moderately elongate, brownish, opaque, antennæ and legs rufous. Head coarsely and densely punctured, not impressed. Thorax nearly square, sides straight, parallel and subcrenate, anterior angles obtuse, not prominent, disc moderately convex, at apex with scarcely a trace of impression, surface coarsely and moderately densely punctured. Elytra with striæ of moderate punctures, not closely placed, feebly submuricate at base, finer and more distant at apex. Mesosternum very sparsely and finely punctured and with coarse punctures near the sides in front. Abdomen sparsely punctured, first ventral very distinctly and moderately densely punctulate. Length .06 inch; 1.5 mm.

The metasternum of the male is slightly flattened, the first ventral vaguely concave, the last ventral moderately deeply concave.

One specimen, Fort Yuma, California.

M. texana n. sp.—Moderately elongate, piceous, subopaque, antennæ and legs rufous. Head coarsely and densely punctured. Thorax nearly square, anterior angles not prominent, hind angles rectangular moderately prominent, sides straight, parallel, subcrenate, disc moderately convex, posteriorly very vaguely foveate, surface moderately densely and rather coarsely punctured. Elytra rather coarsely and moderately closely submuricately punctured, punctures finer and less muricate near the tip. Metasternum nearly smooth at middle, sparsely punctured near the sides. Abdomen nearly smooth, first ventral very sparsely and finely punctulate. Length .06 inch; 1.5 mm.

The male metasternum is slightly flattened, a median line moderately deeply impressed, first ventral merely flattened, last ventral moderately deeply concave.

Occurs at Waco, Texas, (Belfrage).

M. longicollis Gyll., Ins. Suecc. p. 635; Aubé, loc. cit. p. 467, pl. 17, fig. 8.—Elongate, ferruginous, slightly shining. Head coarsely but not densely punctured, hind angles distinctly dentiform. Thorax slightly longer than wide and slightly narrower posteriorly, anterior angles obtuse but slightly prominent, hind angles very small, sides very feebly arcuate, margin scarcely crenulate, disc moderately convex, moderately shining, not densely punctate posteriorly distinctly bifoveolate. Elytra with series of small round punctures, not closely placed becoming gradually finer to tip, intervals distinctly alutaceous. Body beneath sparsely punctulate, metasternum at middle nearly smooth, abdomen very sparsely and finely punctulate. Length .06 inch; 1.5 mm.

Three ♀ specimens from District of Columbia, differing from all our other species by the comparatively smooth and shining thorax.

PHYCONOMUS Lec.

Head slightly prolonged behind the eyes, then suddenly constricted, front slightly dilated over the base of the antennæ. Antennæ ten-jointed, last two joints suddenly enlarged and of equal width. Intercoxal process of abdomen rather wide, broadly arcuate in front. Elytra opaque, irregularly sparsely punctate and opaque. Prosternal sutures distinct.

This genus seems more closely allied to Monotoma than any other, and in fact follows naturally the last species of that genus in form. The prosternal sutures are nearly as distinct as in Rhizophagus. One species only is known.

P. marinus Lec., (*Monotoma*), Proc. Acad. 1858, p. 64; Classification, p. 86.—Moderately elongate, subdepressed, brownish, opaque, sparsely clothed with short whitish hairs. Head opaque, alutaceous, sparsely punctulate. Thorax slightly longer than wide, anterior angles acute, slightly prominent, sides feebly arcuate, gradually narrowed to base, margin crenate, posterior angles obliterated, disc moderately convex, opaque, alutaceous, moderately densely punctulate. Elytra slightly wider than the thorax, opaque, alutaceous, sparsely punctulate. Body beneath opaque, darker in color, sparsely punctulate, metasternum with subgranular aspect. Length .14—.18 inch; 3.5—4.5 mm.

Occurs on the sea-shore south of San Francisco, under decomposing sea-weeds.

HESPEROBÆNUS Lec.

Head slightly prolonged behind the eyes and then suddenly constricted. Antennæ ten-jointed, last two joints suddenly larger, the ninth however not as wide as the tenth. Intercoxal process oval at tip.

Two species occur in our fauna, one from the Atlantic region, the other in California.

They are distinguished as follows:

Elytra with basal third rufous, striæ fine, punctures fine and distant. Anterior angles of thorax prominent, disc with very narrow impunctured space.....**abbreviatus** Motsch.

Elytra entirely piceous, striæ rather deep, punctures coarser and rather approximate. Anterior angles of thorax not prominent, disc with broad impunctured space.....**rufipes** Lec.

H. abbreviatus Motsch., (*Rhizoph.*), Bull. Mosc. 1845, iv, p. 371, pl. 7, fig. 3; *rufipennis* Lec., (*Monotoma*), Proc. Acad. 1858, p. 64.—Moderately elongate, subdepressed, piceous, legs, antennæ and basal third of thorax rufous. Head rather densely and coarsely punctured. Thorax longer than wide, sides feebly arcuately narrowed to base, anterior angles acute and moderately prominent externally, hind angles obtusely rounded, margin finely serrulate, disc subdepressed, surface sparsely punctured, at middle a narrow smooth space, at sides densely punctured. Elytra subdepressed, sides very feebly

arcuate, surface finely striate, striæ with indistinct distant punctures. Body beneath punctured, ventral segments more densely and finely. Length .10 inch; 2.5 mm.

The first ventral segment has a fine coxal line which does not attain the posterior margin.

Occurs in California and Nevada, under bark.

H. rufipes Lec., New Species, 1863, p. 65.—Piceous, subdepressed, antennæ and legs rufous. Head coarsely punctured at the sides, at middle nearly smooth. Thorax as wide as long, sides feebly arcuate and gradually narrowed to base, anterior angles not prominent, hind angles rounded, margin obsoletely crenulate, disc coarsely punctured and with a broad median smooth space. Elytra slightly wider than the thorax, surface striate, striæ with moderately deep and rather closely placed punctures. Body beneath sparsely punctured. Abdomen moderately densely punctured, the first segment more coarsely but more sparsely. Length .12 inch; 3 mm.

As in the preceding there is a distinct but fine and short coxal line.

Occurs in Missouri, Georgia, Louisiana.

H. capito Fairm., (*Rhizoph.*), Rev. Zool. 1850, p. 54.—This insect resembles *abbreviatus* in coloration but has the elytra as distinctly sculptured as in *rufipes*. The thorax is very slightly longer than wide, anterior angles not prominent, sides feebly crenulate, disc depressed, with coarse punctures arranged irregularly in rows. Length .10 inch; 2.5 mm.

Occurs at Honolulu, Sandwich Islands.

EUROPS Woll.

Head slightly prolonged behind the eyes, then suddenly constricted. Antennæ ten-jointed, last two joints suddenly larger and of equal width. Front not dilated before the eyes. Intercoxal process narrow, triangular and subacute. Elytra with striæ of punctures.

This genus corresponds with *Nomophlœus* Lec., (Proc. Acad. 1878, p. 328). It agrees with *Phyconomus* in the structure of the antennæ but differs in all the other characters above mentioned.

Two species only are known in our fauna, one from each side of the continent, two others have been made known by Wollaston. For convenience of comparison a description of the latter is added.

Thorax as wide as long, a rather deep crescentic subbasal impression. First ventral with distinct coxal lines..... **pallipennis** Lec.

Thorax a little longer than wide, a vague longitudinal impression. First ventral without coxal lines..... **impressicollis** Woll.

Thorax one-half longer than wide, no discal impressions. First ventral without coxal lines..... **longicollis** n. sp.

E. impressicollis Woll., has been introduced in the above table as a point of comparison, the other species by the same author is unknown to me in nature.

E. pallipennis Lec., (*Nomophlœus*), Class. Col. 1861, p. 86.—Cylindrical, slightly depressed, piceous, front paler, elytra luteous, suture with a narrow piceous margin dilated at apex. Head sparsely punctate. Antennæ brownish. Thorax as wide as long, slightly narrowed posteriorly, sides nearly straight, margin slightly serrate near the hind angles, surface finely alutaceous and with coarse, slightly elongate punctures sparsely placed and much finer at the sides, middle of disc impunctured and with a moderately deep crescentic impression near the base. Elytra not wider than the thorax, surface finely alutaceous and with striæ of moderate punctures not deeply impressed, finer at tip. Body beneath sparsely and rather finely punctate; first ventral segment with distinct coxal lines. Pygidium moderately punctate. Length .10—.12 inch; 2.5—3 mm.

I have seen four specimens all collected in Pennsylvania. The males have the additional terminal abdominal segment.

E. impressicollis Woll., Ins. Mader. p. 150, pl. 3, fig. 2.—Elongate, subdepressed, body beneath piceous, above pale castaneous, elytra with suture and margin narrowly, tip more widely piceous. Head sparsely punctate at sides and base. Antennæ rufo-testaceous. Thorax longer than wide, sides parallel, surface finely alutaceous, middle of disc with vague longitudinal impression on each side of which are sparsely placed punctures. Elytra not wider than thorax, subdepressed, sides parallel, surface with striæ of moderate punctures rather distantly placed. Body beneath very sparsely punctate. Pygidium sparsely but more evidently punctate. Length .09 inch; 2.5 mm.

The punctures of the elytra as well as those on the under surface bear short hairs.

This species is one of the discoveries of Mr. Wollaston, in the Madeiras, and although not belonging at all to our fauna is introduced in the present paper for comparison.

E. longicollis n. sp.—Elongate, subdepressed, rufo-ferruginous. Head moderately coarsely but not densely punctate. Thorax one-half longer than wide, sides parallel, apex rather suddenly narrowed and very slightly tubulate in front, disc moderately convex and regularly punctate over the entire surface. Elytra not wider than the thorax, parallel, disc with rows of rather closely placed punctures, moderately deeply impressed. Prosternum sparsely punctured at the sides. Metasternum sparsely and more finely punctate. Abdomen moderately densely punctate, first segment more sparsely and finely. Pygidium moderately densely punctate. Length .14 inch; 3.5 mm.

The male has the first ventral segment moderately deeply longitudinally impressed, and in the impression on each side a row of fine hairs. The first ventral of the female is simple.

This species has a different appearance from the other two by its elongate form, and the slight prolongation of the thorax anteriorly in a tubulate manner. I cannot find any generic character for its separation.

Three specimens, California and Nevada.

BACTRIDIUM Lec.

Head parallel behind the eyes, not at all constricted. Antennæ ten-jointed, terminal joint suddenly larger, ninth joint not wider than the eighth. Intercoxal process rather broad, truncate in front. Elytra with rows of punctures. First ventral segment with distinct coxal lines.

Three species occur in our fauna, two from the Atlantic region and one from California, others are known to me from Mexico (*adustum* Reitter), and Rio, (*Fryi* n. sp.).

They may be known as follows:

Thorax merely flattened or with linear impressions.
Sides of elytra closely finely striate.....**ephippigerum** Guer.
Sides of elytra smooth or sparsely punctate.
Body beneath and abdomen scarcely punctured.
Thorax merely flattened; elytra rufous, tip and sides piceous.
striatum Lec.
(Thorax depressed and with a crescentic impression; elytra yellowish.
Fryi n. sp.)
Body beneath and abdomen rather coarsely punctured.
Color piceous, thorax and elytra scarcely depressed...**striolatum** Rttr.
Thorax at middle broadly concave.
Elytra with a broad, vague longitudinal impression.....**cavicolle** n. sp.

Crine Pasc., Journ. of Ent. ii, 1863, p. 29, does not differ from Bactridium, his species is however quite different from *Fryi*, which is from the same region.

B. ephippigerum Guer., (*Rhizoph.*), Icon. Regne Anim. p. 190, pl. 41, fig. 1; *erythropterum* Mels., Proc. Acad. ii, p. 109; *nanum* Erich., Germ. Zeitschr. iv, p. 360.—Piceous, shining, depressed, elytra rufous, sides and tip darker, antennæ and legs rufous. Head rather coarsely and densely punctured. Thorax slightly wider than long, sides feebly arcuate and somewhat narrowed to base, margin posteriorly bidenticulate, disc flattened and with a vague median impression limited on each side and posteriorly with a very indistinct margin, surface sparsely punctured at middle, much more densely at the sides. Elytra slightly wider than the thorax, finely striate, striæ at the sides finer and approximate, those of the disc with fine, rather closely placed punctures. Body beneath sparsely punctured. Abdomen coarsely punctured, the last segment densely and rugulose, first segment with distinct coxal lines attaining the hind margin. Length .08 inch; 2 mm.

This species is easily distinguished from every other in our fauna by the densely striate sides of the elytra.

Occurs from New York to Missouri and Louisiana.

B. striatum Lec., (*Monotoma*), Proc. Acad. 1858, p. 65.—Elongate, depressed, rufous, shining. Head sparsely punctate. Thorax as wide as long, sides in front slightly arcuate posteriorly, straight and gradually convergent posteriorly, hind angles rounded, margin posteriorly obsoletely bidentate, disc

flattened with irregularly placed coarse punctures but without depressed space, sides more densely punctured. Elytra slightly wider than the thorax, paler than it and with the sides narrowly, apex more widely piceous, surface striate, striæ fine with fine distant punctures, striæ at sides replaced by irregularly placed punctures. Body beneath nearly smooth. Abdomen with punctures distinctly visible on the last two segments only, first segment with coxal lines. Length .08 inch; 2 mm.

This species closely resembles the preceding in form and color but is more depressed, smoother beneath and with no striæ on the sides of the elytra.

Occurs under bark, in the desert regions of south-eastern California.

B. adustum Reitter, from Mexico, is closely allied to this species, it is however more convex, the thorax with more punctures, the elytra more evidently striate and the striæ more deeply and closely punctured. It is as smooth beneath as *striatum*.

B. striolatum Reitter, (*Rhizoph.*), Verhandlungen des naturforschenden Vereins in Brünn, xii, 1872, (Sonderabdruck p. 14).—Piceous or rufo-piceous, antennæ and legs paler, form moderately elongate, subdepressed. Head coarsely but not densely punctured. Thorax slightly wider than long, sides feebly arcuate and gradually narrowed posteriorly, and obsoletely bidenticulate, disc subdepressed, moderately coarsely but not densely punctured, punctures of the middle subconfluent forming a vague U-shaped mark. Elytra slightly wider than the thorax, slightly convex, surface striate, striæ with fine not closely placed punctures, intervals finely alutaceous, striæ at sides replaced by sparse punctures. Abdomen coarsely punctured, first segment very finely and sparsely punctured and with distinct coxal lines. Length .08 inch; 2 mm.

This species is the most convex in our fauna. Its color varies from piceous to testaceous, and certain individuals present the appearance of a paler elytral vitta extending from the humeri toward the tip. *Hesperobænus testaceus* Motsch., seems to be merely an immature form.

Occurs from Canada to Florida.

B. Fryi n. sp.—Pale rufous, elytra rufo-testaceous, elongate, subdepressed. Head sparsely punctate. Thorax quadrate, angles obtuse, sides straight, parallel, margin posteriorly obsoletely bidentate, disc flattened, very sparsely and irregularly punctured and with a feeble crescentic subbasal impression. Elytra slightly wider than the thorax, slightly convex, sides parallel, surface with rows of fine distant punctures, sides smooth. Body beneath nearly impunctured. First segment of abdomen with scarcely any trace of punctures and with distinct coxal lines, segments two to four with fine punctures, last segment more distinctly punctured. Pygidium sparsely punctured. Length .08 inch; 2 mm.

I have before me two specimens of this species, collected by Alexander Fry, Esq., of London, during a visit to Brazil, at Rio de Janeiro.

This species is introduced here to show the generic distribution.

B. cavicolle n. sp.—Moderately elongate, rufescent, shining. Head sparsely punctate. Thorax one-fourth broader than long, sides parallel, slightly sinuate at middle, anterior and posterior angles rounded, margin posteriorly very obsoletely bidentate, disc flattened, at middle rather broadly concave and very sparsely punctate, at sides more densely and coarsely. Elytra scarcely wider than the thorax, each longitudinally broadly impressed near the suture, surface striate, striæ with moderately impressed but not closely placed punctures which become finer near the tip, sides with a few sparsely placed punctures. Body beneath nearly smooth. First ventral segment very sparsely and finely punctured, second, third and fourth each with a single row of closely placed deep punctures, last ventral sparsely punctate. Pygidium coarsely punctured. Length .09 inch; 2.25 mm.

The concavity of the disc of the thorax, with its generally broader form readily distinguishes this species.

One specimen in my cabinet from Pennsylvania.

Revision of the NITIDULIDÆ of the United States.

BY GEORGE H. HORN, M. D.

Anterior and middle coxæ transverse, the former not prominent, posterior coxæ flat. Antennæ ten or eleven-jointed, capitate, straight. Tarsi usually five-jointed, nearly always dilated, first joint as long as the second; rarely four-jointed *Cybocephalus* or three-jointed *Smicrips*.

The above short diagnosis sufficiently indicates the more important and defining characters of the family. For a fuller exposition the student is referred to the "Classification of the Coleoptera of North America."

With the exception of the two genera above indicated the family is quite homogeneous, including them as aberrant members there is no more heterogeneity than is usual in almost every family of large size.

Mr. Murray (Monograph. p. 224), is willing to exclude *Cybocephalus*, basing his views on the four-jointed tarsi, the form of the thorax beneath and finally the general appearance, "to my eye *Cybocephalus* wants this family resemblance." The first objection is certainly entitled to a little consideration, but we are not informed where the genus is to be placed, if in a new family the precedent would require numerous new families everywhere among the Coleoptera from the Dytiscidæ down. The objection based on the structure of the thorax beneath is not at all valid, as *Cybocephalus* differs far less from *Amphicrossus* or *Cyllodes* than these do from *Nitidula*. Regarding the lack of family resemblance I am unable to see any feature which deserves more attention than another. *Pallodes* and *Conotelus* are

certainly characteristic *Nitidulides* and do we not find *Cybocephalus* resembling *Pallodes* more than the latter does *Conotelus?* In the closely allied family Trogositidæ, we have *Trogosita* and *Thymalus* diverging far more in form than any two genera of Nitidulidæ.

In the exclusion of the Rhizophagini from the family I see no profit and no just grounds for so doing. The ten-jointed antennæ and the heteromerous male tarsi are for me entirely insufficient. That they form a step toward the Trogositidæ is true, yet the distance still remains sufficiently great.

As thus constituted the family may be divided into the following tribes:

Antennæ eleven-jointed, terminated by a three-jointed club. Tarsi isomerous, similar in the two sexes.
  Tarsi five-jointed.
    Labrum free, more or less visible.
      Maxillæ with two lobes. Antennæ feebly capitate.....**Brachypterini.**
      Maxillæ with one lobe. Antennæ distinctly capitate.
        Prothorax not margined at base. Head horizontal.
          Abdomen with two segments exposed.....**Carpophilini.**
          Abdomen covered or pygidium partly exposed.....**Nitidulini.**
        Prothorax margined at base, covering the base of elytra, head more or less deflexed.....**Cychramini.**
    Labrum connate with the epistoma.....**Ipini.**
  Tarsi four-jointed. Body contractile.
    Thorax margined at base, covering the base of the elytra.....**Cybocephalini.**
  Tarsi three-jointed. Body elongate.....**Smicripini.**
Antennæ ten-jointed, club two-jointed. Tarsi dissimilar in the sexes, heteromerous in the males.....**Rhizophagini.**

The above arrangement is practically that of Erichson, with the addition of the two tribes. Further comment on the tribes will be found under the head of each.

The Bibliography and Synonymy are deferred to the end of the essay, partly for convenience and also to free the student from the influence of names which may be attached to specimens, most of the collections of the country being in wretched confusion.

BRACHYPTERINI.

Antennæ eleven-jointed, terminated by a three-jointed (two in some *Cercus*) club, usually gradually formed and not of compact construction. Labrum distinct, usually small, often deeply emarginate. Maxillæ with two lobes. Anterior coxæ narrowly closed behind. Tarsi dilated.

The only character of any great value is that derived from the

maxillæ, secondarily the form of the antennal club and the absence of grooves beneath the head.

In all the genera I find the males have a very distinct additional terminal dorsal segment, varying in size in each genus, being most distinct in *Anthonæus* and least so in *Amartus*.

Two of our genera are composed of small species, in which the elytra have a distinct marginal line and the epipleuræ consequently well marked, the other two have larger species, equalling in size any of our *Carpophilus*, in which there is scarcely any trace of marginal line and no very evident epipleuræ.

Brachypterus has the tarsal claws distinctly toothed at base, in the other genera they are absolutely simple or with merely a very slight dilatation.

The differences between the genera may be expressed in tabular form as follows:

Claws distinctly toothed at base.
  Elytra margined, epipleuræ distinct.....**Brachypterus.**
Claws simple or very nearly so.
  Elytra margined, epipleuræ distinct.....**Cercus.**
  Elytra not or extremely feebly margined, epipleuræ indistinct.
    Form convex; terminal ♂ segment visible beneath only.....**Amartus.**
    Form depressed; terminal ♂ segment rather large, visible above.
Anthonæus.

BRACHYPTERUS Kug.

Claws toothed near the base. Antennæ with a loose three-jointed club. Legs rather slender. Elytra much longer than the exposed portion of the abdomen. (Pl. III, fig. 2).

As recognized by Mr. Murray this genus is composed of very dissimilar material. The claws as figured, by no means represent the idea of a tooth as required by the generic description and the typical species, although the figure fairly resembles the claw of *Amartus tinctus*, in which the usual basal dilatation is present without any trace of tooth.

B. tinctus (Mann.) Murr., has been removed from the present genus and placed with another species in *Amartus* Lec., (= *Brachyleptus* Motsch., to which Murray assigned merely subgeneric value).

Three species occur in our fauna, all of small size and moderately robust facies, distinguished in the following manner:

Sides of thorax sinuate in front of posterior angles.
  Elytra truncate, sutural angle rectangular.....**urticæ.**
Sides of thorax arcuate, hind angles obtusely rounded.
  Elytra truncate, sutural angle rectangular.....**troglodytes.**
  Elytra separately rounded at tip, sutural angle slightly rounded.
globularius.

B. urticæ Fab.—Oval, convex, piceous with slight æneous tinge, surface shining and very sparsely pubescent. Head coarsely and moderately densely punctured. Antennæ rufous. Thorax nearly twice as wide as long, convex, coarsely and moderately densely punctured, sides arcuate and slightly sinuate in front of hind angles. Elytra a little more coarsely but rather less densely punctured than the thorax, longer than wide conjointly, apices truncate. Abdomen above sparsely obsoletely punctured. Prosternum coarsely and densely punctured, metasternum sparsely punctured, abdomen more distinctly punctate. Legs rufous. Length .08 inch; 2 mm.

The male has a very distinct terminal dorsal segment beyond the pygidium.

The sinuation of the thorax is by no means very evident but may be perceived by careful looking.

Occurs in the Atlantic States, probably introduced from Europe.

B. troglodytes Murr.—Very closely resembling *urticæ* but is a little more coarsely sculptured, and the sides of the thorax are not sinuate. The apices of the elytra are very squarely truncate. Length .08 inch; 2 mm.

Widely distributed in maritime California.

B. globularius Murr.—Resembles the two preceding but is a little larger, the sculpture less evident and the pubescence faint. The sides of the thorax are not sinuate and the apices of the elytra less squarely truncate. Length .09 inch; 2.25 mm.

Although very closely allied to the two preceding the species seems sufficiently distinct, rather from its general appearance than from the possibility of assigning any very definite characters to it.

Occurs in Colorado and Mexico, Mr. Murray says from Connecticut also, but I doubt the correctness of this statement.

CERCUS Latr.

The characters of this genus are given in detail in the books and do not require repetition. Certain matters however, appear to have escaped notice and deserve especial mention.

All authors who have had occasion to study Cercus, are in accord in being unwilling to assign the additional segment to the male. This is certainly incorrect in our species and probably also in all. The pygidium of the male is distinctly truncate and an additional segment is quite as apparent as in *Amartus*. In the female the pygidium is oval at tip and has a submarginal impressed line around the entire apical border. This line is interrupted at the middle or truncate portion of the pygidium of the male. Accompanying this sexual character is another in the form of the thorax. The males of two of our species have the hind angles of the thorax obtuse or even rounded, while in the females the sides of the thorax are

feebly sinuate and the hind angles distinct, almost rectangular. In *C. abdominalis* this difference in the thorax is not evident. I am not aware that any European species exhibits such sexual differences in the thorax, possibly they do not exist or such observers as Erichson and Duval would have noticed them, while Mr. Murray appears to have described the sexes of one of our species under two names.

Cercus having simple claws is allied to *Amartus*, but differs from that and *Anthonæus* in having but one abdominal segment exposed, and the elytra being very distinctly margined at the sides, the epipleuræ well defined.

The species occurring in our fauna are as follows:

Antennæ similar in the sexes.
Club triarticulate; body above green or bluish glabrous.. ..**abdominalis.**
Club biarticulate; body above not metallic, pubescent.
Elytra sparsely punctate, that is the distance between the punctures is greater than the size of the punctures.....**pennatus.**
Elytra densely punctate, punctures closer together than their own diameter.....**sericans.**
Antennæ dissimilar in the sexes, the first two joints dilated in the male.
Elytra piceous with discoidal rufous spot on each.....**bipustulatus.**

C. abdominalis Erichs.—Oval, convex, metallic blue, shining, abdomen and legs red. Head densely punctate. Antennæ rufous, club piceous. Thorax convex, one-third wider than long, base a little wider than apex, sides moderately arcuate, feebly sinuate near the basal angles which are rectangular, surface equally punctate, punctures moderately coarse not dense. Scutellum sparsely punctate. Elytra a little longer than wide conjointly, sides feebly arcuate, convex, a little more coarsely punctured than the thorax. Prosternum densely and coarsely punctured, body more finely and less densely, abdomen moderately coarsely not densely punctured. Length .08—.10 inch; 2—2.5 mm.

The sexual peculiarities have already been remarked upon in the generalities above.

Occurs everywhere in the United States east of the Rocky Mts.

C. pennatus Murr.—Oval, moderately robust, piceo-testaceous, moderately shining, sparsely pubescent. Head moderately densely punctate, front feebly bi-impressed. Thorax nearly twice as wide as long, apex feebly emarginate, base slightly arcuate, sides moderately arcuate, margin narrowly reflexed, posteriorly slightly sinuate ♀ or regularly arcuate ♂, disc convex, moderately densely punctate. Scutellum coarsely but sparsely punctate. Elytra longer than wide conjointly, apices rotundato-truncate, surface moderately coarsely not densely punctate. Abdomen above very sparsely punctulate. Body beneath sparsely punctate. Length .09 inch; 2.25 mm. (Pl. III, fig. 6).

The males have an additional segment very plainly visible but

less developed than in *Brachypterus*. To this species I have added *crinitus* Murr., it is the male.

Occurs from Canada to Tennessee and the New England States.

C. sericans Lec.—Oval, slightly oblong, usually testaceous, often with head and elytra piceous, surface feebly shining, sparsely pubescent. Thorax a little more than half as wide as long, moderately densely punctured, sides very narrowly margined, feebly arcuate, slightly sinuate posteriorly in the ♀. Elytra longer than wide conjointly, scarcely shining, surface densely punctured. Body beneath sparsely punctate. Length .06—.08 inch; 1.5—2 mm.

The sexual characters are in this species as in *pennatus*, in fact it was first observed that certain specimens here had a sinuate thorax while others were arcuate, and that while all the former were ♀ the latter were ♂.

Occurs in California, rather widely distributed.

C. bipustulatus Payk.—Coarsely punctured, black; mouth, antennæ, legs and discoidal spot on each elytron rufous. Length .10—.12 inch; 2.5—3 mm.

The antennæ of the males have the first two joints much broader than in the female.

I introduce this species here on the authority of several specimens having been found near Boston. I do not know if it has obtained permanent lodgement.

AMARTUS Lec.

The characters of this genus are for the most part those of *Brachypterus*, the differences are as follows:

Two dorsal segments of abdomen exposed. Legs especially the tibiæ broader and stouter. Claws not toothed at base but with the usual dilatation. Third tarsal joint deeply bilobed. Elytra not margined, epipleuræ indistinct. (Pl. III, figs. 3—4).

The males have an additional abdominal segment belonging to the dorsal series, but in great part covered by the pygidium and visible only narrowly beneath. The pygidium does not differ notably in the two sexes and care must therefore be exercised in separating them.

It seems to me inexplicable why Mr. Murray allowed (*Strongylus?*) *tinctus* Mann., to remain in generic association with *Brachypterus*. The claws of the species being well figured by him and not exhibiting any basal tooth whatever in the sense in which it exists in *B. urticæ*, etc. Having admitted *tinctus* it is not easily understood why *Amartus* was not also joined. Synonymous with *Amartus* is *Brachyleptus* Mots., based on inaccurate characters given in a few words.

The facies of the species of the present genus is so remarkably different from *Brachypterus* as to indicate other more important differences, while the similarity between *rufipes* and *tinctus* is so marked that their close association cannot be otherwise than natural.

The two species above mentioned although very distinct on comparison are not easy to separate by tabulation, the principal differences are as follows:

Form very robust, thorax very convex, apex distinctly narrower than the base.....**tinctus.**

Form less robust, more elongate, thorax moderately convex not narrower at apex.....**rufipes.**

The second species has the habitus of *Carpophilus hemipterus*, while the former is much more robust than *C. melanopterus*. The two species belong to the fauna of maritime California.

A. tinctus Mann.—Oval, robust, piceous, subopaque, sparsely clothed with short greyish pubescence, surface densely punctured, the elytra a little more coarsely than the thorax. Thorax one-third wider than long, apex a little narrower than the base and very feebly emarginate, sides feebly arcuate, hind angles broadly rounded, base broadly arcuate and slightly sinuate each side, disc convex. Elytra as broad conjointly as long, slightly narrowed toward the apex, a feeble scutellar depression. Abdomen above very densely punctured, more finely than the elytra. Body beneath densely punctured. Length .16—.20 inch; 4—5 mm.

The color is normally piceous above and beneath, but varieties occur either entirely ferruginous or with the legs and elytra of that color, (*ferrugatus* Murr.).

Occurs in California.

A. rufipes Lec.—Oblong oval, moderately convex, piceous, sparsely cinereo-pubescent, legs, antennæ, sides and apex of elytra ferruginous, surface densely punctured, opaque. Thorax one-half wider than long, apex scarcely narrower than the base, sides moderately arcuate, hind angles broadly rounded, base broadly arcuate, disc moderately convex. Elytra conjointly as wide as long, very little narrowed to apex, surface punctured as the thorax. Abdomen above densely and more finely punctured than the elytra. Body beneath densely punctured. Length .16 inch; 4 mm.

All the specimens I have seen are similar in color.

Occurs in California, especially near Tejon.

ANTHONÆUS n. g.

Antennæ eleven-jointed, the last three joints feebly broader forming a loose club, the terminal joint conical and sub-appendiculate at tip. Mouth parts similar to *Brachypterus*, mandibles moderately prominent. First three abdominal segments short, the first longer than either of the two following, fourth equal to second and third together, fifth

nearly as long as the first three. Tibiæ dilated, claws simple. Elytra not margined except very feebly near the humeri, epipleuræ indistinct. Thorax at base free.

The males have a sixth segment visible on the dorsal aspect of the abdomen.

The characters above given indicate a genus allied to *Amartus* by its mandibles prominent beyond the labrum, its simple claws and the presence of an additional segment in the male. It differs in the thorax being free at base, not overlapping the sides of the base of the elytra, its much more depressed form and nearly glabrous surface and the more prominent male segment. In *Amartus*, although the male has an additional segment, the pygidium is similar in the two sexes and in the male covers the additional sixth when viewed from above; beneath however the segment is visible. In the present genus the segment is quite as distinct as in *Carpophilus*, and the species might even be mistaken for a member of that genus. It has nothing in common with *Colastus* where Mr. Crotch placed it.

A. agavensis Crotch, (*Colastus*).—Oblong oval, depressed, piceous, varying to ferruginous with paler elytra, surface shining, very sparsely pubescent. Head moderately punctate. Thorax one-third wider than long, apex and base equal, sides regularly arcuate, angles obtuse, disc depressed, surface rather coarsely but not densely punctate. Scutellum punctate. Elytra a little longer than wide conjointly, slightly broader behind, surface moderately densely punctate. Abdomen punctured similarly to the elytra. Prosternum sparsely punctate, metasternum coarsely punctured at the sides, abdomen very sparsely punctate. Length .16—.18 inch; 4—4.5 mm. (Pl. III, fig. 5).

The additional segment of the male is oval, slightly concave, and not deflexed, the true pygidium is slightly emarginate.

Occurs in the flowers of *Agave* in southern California.

CARPOPHILINI.

Maxillæ with one lobe. Antennæ terminated by an abrupt three-jointed club, antennal grooves distinct. Tarsi dilated but sometimes feebly. Two or three segments of abdomen visible beyond the elytra.

These characters apply to the genera in our fauna, there being exceptional cases to one or other character among foreign genera.

It is worthy of special mention here that in all our genera the males have an additional segment belonging to the dorsal series beyond the pygidium. This additional segment seems to be constructed on the plan of a hollow cylinder closed at the distal end, and with a large fenestrum cut out of the lower side to allow of

the extrusion of the sexual organs and for the anal opening. This cylindrical form is more or less modified in accordance with the convexity of the abdomen; in a robust species like *Carp. pallipennis* the cylindrical form is quite perfect, while in *Brachypeplus* and *Colastus* it is very much flattened. A very good idea may be obtained of the structure of this segment, by examining the terminal segment of the cylindrical larvæ of certain Elateridæ, such as *Agriotes* or *Elater*.

The genera in our fauna are four in number and have representatives on both sides of the continent, excepting *Brachypeplus*. They are distinguished as follows:

Ventral segments 2—3 short, first, fourth and fifth longer.....**CARPOPHILUS.**
Ventral segments 1—4 short, fifth as long as the others united.....**COLASTUS.**
Ventral segments 1—2 short, 3—4 longer, fifth still longer.
Body depressed; fifth ventral elongate but not conical.....**BRACHYPEPLUS.**
Body elongate, fifth ventral long and conical.....**CONOTELUS.**

CARPOPHILUS Steph.

Labrum bilobed. Antennæ eleven-jointed, terminated by a flattened-oval, three-jointed club, grooves moderately deep, convergent. Legs moderately robust, tibiæ slightly broader at tip, spurs moderate. Tarsi dilated, claws simple. Two sometimes three dorsal segments visible beyond the elytra, abdomen beneath with segments 2—3 short, 1—4—5 longer.

This genus is closely related to *Colastus*, but differs in the structure of the abdomen and the sexual characters. Here must be placed *Tribrachys* Lec., the apparent equality in length between the first three segments results from the extension of the abdomen in the specimens on which it was founded.

The males have an additional segment beyond the pygidium, which is strongly deflexed and apparently belonging to the ventral series, an illusion which is further heightened by an emargination of the fifth ventral in which the sexual segment closely fits. That it belongs to the dorsal and not to the ventral series is easily proven by dissection, or by the position of the anal opening when the segments are extended.

Several species have the middle tibiæ stouter in the male, this is especially noticeable in *pallipennis*.

C. antiquus Er., is remarkable in having the posterior tibiæ suddenly dilated in its apical half, as in the male *Epuræa luteola* Er. This was noticed by Murray who failed to recognize its sexual nature.

The species of this genus are very troublesome to define, from their variability in color and their tendency to vary in sculpture. The following table will assist in their determination, and although prepared with considerable trouble is not a perfect guide but rather an aid.

Hind angles of thorax broadly rounded or very obtuse.
  Thorax evidently narrower than the elytra, disc subdepressed.....**yuccæ.**
  Thorax as wide as the elytra, disc convex.
    Thorax narrowed in front, anterior angles rounded.
      Elytra uniform in color but variable from piceous to yellow.
pallipennis.
      Elytra piceous with yellow basal and apical spaces.....**hemipterus.**
    Thorax quadrate, anterior angles distinct.....**mutilatus.**
Hind angles of thorax distinct but sometimes retracted.
  Sides of thorax with a short posterior sinuation, hind angles retracted.
    Robust, densely finely punctured, subopaque.....**melanopterus.**
    Oblong, depressed, sparsely punctate.
      Ferruginous, shining, elongate, prosternum smooth at middle.
tempestivus.
      Piceous, subopaque, oblong oval, prosternum densely coarsely punctured.
decipiens.
  Sides of thorax not sinuate, hind angles rectangular.
    Thorax very distinctly narrower at apex than base.
      Sides arcuate, surface opaque..... **niger.**
      Sides straight, surface feebly shining.....**marginatus.**
    Thorax subquadrate, not or very feebly narrower at apex.
      Surface opaque, densely punctured.....**corticinus.**
      Surface moderately shining, sparsely or inconspicuously punctured.
        Prosternum in front nearly smooth.
          Piceous, nearly black, color uniform.....**brachypterus.**
          Piceous, elytra with large pale discal spot on each.....**discoideus.**
        Prosternum in front densely, rather coarsely punctured.
          Punctuation of surface rather coarse and sparse. Hind tibiæ of male suddenly broader at apical half.....**antiquus.**

C. yuccæ Crotch, (*Colastus*).—Piceous black, feebly shining, oblong oval, narrower in front. Head densely punctulate. Thorax one-half wider than long, slightly narrower in front, sides moderately arcuate, hind angles rounded, base slightly sinuate on each side, surface densely punctate. Scutellum moderately densely punctured. Elytra slightly wider than the thorax, a little longer than wide conjointly, apices obliquely truncate, surface densely punctured like the thorax. Abdomen above rather more sparsely punctured than the elytra. Body beneath densely punctured as above. Length .18—.24 inch; 4.5—6 mm.

The males present no special sexual characters other than the additional deflexed dorsal segment and the emarginate fifth ventral.

I cannot see why Mr. Crotch placed this species in *Colastus*, all the characters being those of *Carpophilus*.

Occurs abundantly in the Mojave Desert, in unopened flower heads of Yucca.

C. hemipterus Linn.—Piceous, oblong, feebly shining, sparsely pubescent, elytra with humeral spot and large irregular apical space testaceous. Head sparsely punctured. Thorax one-third wider than long, narrowed at apex, sides feebly arcuate, hind angles obtuse, base slightly sinuate each side, disc with a vague impression each side near the base, surface sparsely punctured at middle more densely near the sides. Scutellum sparsely punctate. Elytra conjointly wider than long, piceous, a humeral spot and large irregular apical space yellow, surface sparsely punctate. Abdomen above more finely punctured than the elytra. Prosternum coarsely but sparsely punctured. Body coarsely and more densely punctured. Abdomen sparsely and rather finely punctured. Legs pale. Length .16 inch; 4 mm.

In addition to the anal segment the males have the middle tibiæ stouter than in the female.

This species which is widely distributed over the region east of the Rocky Mountains, is very constant in its system of coloration, and by this may be known from any other in our fauna. It is nearly a cosmopolitan species.

C. pallipennis Say.—Form moderately robust, oblong oval, color variable, sparsely pubescent. Head coarsely not densely punctured. Thorax convex, one-third wider than long, narrowed in front, sides moderately arcuate, hind angles broadly arcuate, surface moderately densely punctured. Scutellum moderately densely punctured. Elytra conjointly a little wider than long, surface very regularly and moderately densely punctured. Abdomen above more finely and sparsely punctulate. Prosternum nearly smooth, body coarsely not densely punctured, abdomen more finely and sparsely punctured. Length .12—.16 inch; 3—4 mm.

The sexual characters are as in *hemipterus*, the middle tibiæ being even more dilated in the male.

The variations in color are so marked in this species as to have caused some synonymy. The most notable varieties will be mentioned.

pallipennis Say.—Piceous, abdomen beneath, legs and elytra yellow-testaceous. Immature specimens occur entirely yellow.

floralis Er.—Piceous, legs somewhat paler.

————.—Ferruginous brown, head and thorax somewhat darker.

Intermediate variations between these occur so that there is no lack of intermediate forms.

Occurs west of the Mississippi River from Kansas to Texas, thence westward through Arizona into the Peninsula of California, and southward through Mexico. It is abundant in the flowers of Cactus in the Spring.

C. dimidiatus Fab.—Oblong, color variable from piceous to ferruginous, very feebly shining, sparsely pubescent. Head moderately densely punctured. Thorax quadrate a little wider than long, sides nearly straight, hind angles obtuse not prominent, surface coarsely and moderately densely punctured, less

densely punctured on the disc. Scutellum sparsely punctured. Elytra longer than wide conjointly, a little narrower toward apex, surface more sparsely and finely punctured than the thorax. Abdomen punctured similarly to the elytra. Prosternum coarsely and densely punctured, body less densely, abdomen moderately densely and more finely. Length .08—.14 inch; 2—3.5 mm.

The males have the additional pygidial segment.

The nearly square thorax and comparatively large head distinguish this species from any other in our fauna. It varies considerably in color and size, so that the larger pale and the smaller dark specimens might easily be mistaken for distinct species.

Under this name I feel compelled to unite several species which Murray retains in a feeble manner as distinct. *C. luridus* Murr., is certainly not distinct from *mutilatus*, while *dimidiatus* is a smaller form of darker color often more sparsely punctured. A study of Murray's descriptions with the known tendency of that author to multiply species on a slender basis, leads me to believe that not only these but as many more species should be suppressed.

This species occurs everywhere in our country excepting the Pacific coast. Its original habitat was probably the West Indies, but it is now cosmopolitan.

C. melanopterus Er.—Oval, moderately robust, entirely pale ferruginous beneath and above, elytra usually piceous, the epipleurae pale. Head moderately densely punctured. Thorax one-third wider than long, narrowed in front, sides feebly arcuate, hind angles small retracted, base slightly sinuate near the hind angles, disc convex, surface densely punctured, more finely than the head. Scutellum rather sparsely punctured. Elytra conjointly a little wider than long, slightly wider posteriorly, punctured similarly to the thorax. Abdomen above sparsely punctured and more finely than the elytra. Prosternum coarsely not densely punctured, body coarsely and more sparsely, abdomen rather finely. Length .16 inch; 4 mm.

The middle tibiæ in the two sexes are similar.

C. rufus Murr., is a variety with the elytra ferruginous.

Occurs in Georgia, Texas and Mexico.

C. tempestivus Er.—Oblong, moderately elongate, pale rufous, suture and tip of elytra often narrowly piceous, shining, glabrous. Head sparsely punctate, antennæ pale, club piceous. Thorax broader than long, apex and base truncate, sides feebly arcuate, near base distinctly sinuate, hind angles retracted, small but acute, disc subdepressed, sparsely punctate. Elytra a little longer than wide conjointly, slightly narrowed at apex, surface a little more coarsely punctate than the thorax. Abdomen above a little more sparsely and finely punctured than the thorax. Prosternum smooth at middle, sparsely punctured at the sides, body and abdomen sparsely punctate. Length .08—.10 inch; 2—2.5 mm.

There are no special sexual characters.

The three species associated in the table have very little in common except the sinuation of the thorax and the retracted angles, *melanopterus* being allied to *pallipennis*, *decipiens* to *discoideus*, while the present species stands rather alone, resembling feebly by its shining surface *antiquus*.

Occurs in the West Indies, Georgia and Florida.

C. decipiens n. sp.—Oblong oval, depressed, piceous, feebly shining, sparsely pubescent, elytra paler. Head moderately punctured. Thorax one-third wider than long, base slightly narrower than apex, sides moderately arcuate slightly sinuate posteriorly, hind angles distinct but slightly retracted, disc flat, surface not densely but equally punctate. Scutellum sparsely punctate. Elytra a little longer than wide conjointly, slightly narrowed toward the apex, surface more finely punctured than the thorax and distinctly alutaceous. Abdomen a little more coarsely punctured than the elytra. Prosternum, body and abdomen beneath moderately densely and equally punctured. Length .12—.14 inch; 3—3.5 mm.

Sexual characters as in *brachypterus*. The posterior tibiæ are also somewhat stouter in the male. This species resembles *discoideus*, but is distinct by the more evident punctuation of the surface, the sides of thorax perceptibly sinuate at base, the punctured prosternum, and the absence of discal elytral spot.

Occurs in California, at Tejon, in Arizona and Lower California.

C. niger Say.—Oval, slightly oblong, piceous, subopaque, sparsely pubescent. Head densely punctured. Thorax one-half wider than long, narrowed in front, sides regularly arcuate, base slightly narrowed and on each side sinuate, hind angles moderately prominent, disc slightly flattened, a feeble oblique impression at base each side of scutellum, surface densely punctured. Scutellum moderately densely punctured. Elytra conjointly as wide as long, slightly narrowed posteriorly, humeral angles prominent, disc slightly flattened, surface densely punctured. Abdomen above more finely and rather less densely punctured than the elytra. Surface beneath moderately densely punctate. Length .12—.18 inch; 3—4.5 mm.

The males have the additional abdominal segment; tibiæ similar in the sexes.

A specimen in my cabinet which I refer to this species as a variety has the elytra rufous in great part, the sides posteriorly, apex and suture being piceous, the legs also are rufous.

Occurs everywhere in our fauna from Canada to Arizona, and the variety above in California.

C. marginatus Erichs.—Oval, slightly oblong, sides of thorax and elytra continuous, rufous or rufo-piceous, tip of elytra somewhat darker, surface moderately shining, sparsely pubescent. Head moderately densely punctured. Thorax nearly twice as wide as long, narrowed in front, sides straight, slightly

arcuate near the anterior angles, base nearly squarely truncate, hind angles rectangular, disc moderately densely punctured. Scutellum sparsely punctured. Elytra conjointly as wide as long, slightly narrowed posteriorly, sides feebly arcuate, apices squarely truncate, surface punctured as the elytra. Abdomen less coarsely and densely punctured than the elytra. Prosternum very sparsely punctured, body more coarsely and densely, abdomen less densely and more finely than the body. Length .06—.08 inch; 1.5—2 mm.

This is our smallest species and the only one with the margins of the thorax and elytra continuous, it has therefore somewhat the outline of an *Hydroporus*.

Middle and Southern States, not common.

C. corticinus Erichs.—Oval, slightly oblong, piceous, feebly shining, sparsely pubescent. Head densely punctured. Thorax one-half wider than long, as broad at apex as at base, sides feebly arcuate, hind angles rectangular, slightly prominent, base feebly sinuate each side, surface moderately densely, not coarsely punctured. Scutellum punctured at middle. Elytra a little longer than wide conjointly, sides feebly arcuate, slightly narrowed to apex, disc with a vague postscutellar depression, surface punctured like the thorax. Abdomen above more sparsely and finely punctate. Prosternum densely and rather coarsely punctured, body less densely punctured, abdomen less densely and coarsely. Legs rufo-piceous. Length .12 inch; 3 mm.

Sexual characters as in *niger*.

This species resembles a small *niger* but is known by the form of the thorax and the more shining surface, and excepting its shorter form resembles *Epuræa truncatella* in general appearance.

Occurs especially in the Middle and Southern States.

C. brachypterus Say.—Oblong oval, subdepressed, piceous, subopaque, very finely and sparsely pubescent. Head moderately punctate. Thorax nearly twice as wide as long, apex and base equal, sides moderately arcuate, punctures of the disc rather coarse and not dense, at the sides denser and finer, the interspaces alutaceous, hind angles small but distinct. Scutellum very sparsely punctate. Elytra a little longer than wide conjointly, slightly narrowed to apex, surface more finely punctured than the thorax, the intervals alutaceous, punctures rather coarser near the scutellum. Abdomen above a little more coarsely and sparsely punctured than the elytra. Prosternum nearly smooth, metasternum coarsely but sparsely punctured, abdomen less coarsely and more sparsely punctured. Length .10 inch; 2.5 mm.

The males are known only by the additional segment.

This species resembles *mutilatus* but is more elongate and has quite distinct thoracic hind angles. It is also difficult to distinguish from *discoideus* by description, but the latter is more depressed and broader, and the elytra have either a large pale elytral spot or are entirely pale.

Occurs from Pennsylvania to Canada and California.

C. discoideus Lec.—Oval, slightly oblong, depressed, color variable, elytra with discal paler spot more or less evident, surface moderately shining, very sparsely pubescent. Head sparsely, rather finely punctate. Thorax one-half wider than long, as wide at apex as at base, sides moderately arcuate, hind angles distinct, surface moderately coarsely and densely punctate, not more densely at the sides, intervals obsoletely alutaceous. Scutellum sparsely punctate. Elytra longer than wide conjointly, slightly broader behind, surface punctured similarly to the thorax but more obsoletely near the apex. Abdomen above more sparsely and finely punctured than the elytra. Prosternum nearly smooth, body sparsely punctate, abdomen more distinctly punctate, more densely on the last two segments. Legs piceo-testaceous. Length .10—.12 inch; 2.5—3 mm.

The males are as in *brachypterus*.

The color is variable from rufo-piceous to piceous, in the latter forms the elytra have a large discal pale spot on each, which is more or less distinct on all specimens.

The paler varieties of this species might readily be mistaken for *decipiens*, but the thoracic and prosternal characters will distinguish them.

Occurs from Tejon to Mariposa, California.

C. antiquus Mels.—Oblong, piceous, moderately shining, base of elytra rufous gradually passing to piceous. Head rather sparsely punctate. Thorax one-third wider than long, base and apex equal, sides feebly arcuate, hind angles rectangular, surface sparsely punctured at middle, more finely and densely at the sides. Scutellum sparsely punctate. Elytra longer than wide conjointly, slightly narrower toward apex, surface rather coarsely but sparsely punctate. Abdomen a little more densely punctured than the elytra. Prosternum and metasternum at sides coarsely and moderately densely punctured, abdomen less densely and more finely punctured. Legs rufous. Length .10 inch; 2.5 mm.

The males have the usual inflexed pygidial segment, and in addition the hind tibiæ are slender at base and suddenly broader at apical half as in *Epuræa luteola*. (Pl. III, fig. 21).

The color of this species is dark piceous, the anterior margin of the head and the sides of the thorax inclining to rufous. The basal half of the elytra is usually rufous, sometimes a narrow basal border only which extends along the sides and suture.

Occurs in the Middle and Southern States.

COLASTUS Erichs.

Our species are few in number and apart from the usual specific differences present no marked peculiarities. Their form is either broadly oval or oblong, usually much depressed, the surface punctured and sparsely pubescent. The prosternum at tip is very distinctly broader behind the coxæ, but in *truncatus* the anterior coxæ are very

narrowly separated and the tip of the prosternum scarcely perceptibly dilated. In this species also the hind angles of the thorax are rounded, while in the others they are subacute and slightly prolonged backwards. The males are known by an emargination of the fifth ventral segment, which is at bottom either truncate or sinuate, and a small additional segment is visible which belongs to the dorsal series. (Pl. III, fig. 7).

The species known to us are distinguished in the following manner:

Hind angles of the thorax distinct.
Scutellum smooth at tip.
Form broadly oval.
Thorax with an oblique fovea in each hind angle.....**morio.**
Thorax without angular fovea; elytra maculate.....**maculatus.**
Form oblong, much depressed.
Elytra rufous with entire limb narrowly piceous.....**semitectus.**
Scutellum densely punctured.
Form oblong; color uniformly piceous.....**unicolor.**
Hind angles of thorax obtuse, rounded.
Form oblong oval, depressed.....**truncatus.**

These species all belong to the fauna of the Atlantic region, but *truncatus* occurs also on the Pacific.

C. yuccæ and *agavensis* Crotch, do not belong to the genus, the former will be found in *Carpophilus*, the latter in the preceding tribe.

C. morio Erichs.—Broadly oval, depressed, piceous black, moderately shining, sparsely pubescent. Head coarsely and moderately densely punctured. Thorax more than twice as wide as long, sides arcuate, apex emarginate, base sinuate on each side, twice as wide as apex, surface feebly convex, coarsely and moderately densely punctured, a vague depression each side of the scutellum and a deeper oblique impression in each hind angle, the latter rectangular. Scutellum coarsely punctured, smooth at apex. Elytra conjointly wider than long, moderately densely and coarsely subseriately punctured, apices separately arcuate. Abdomen above less coarsely punctured than the elytra. Body beneath piceous. Prosternum very sparsely punctate, body and abdomen sparsely punctate, on the last segment more densely. Legs rufous. Length .16—.20 inch; 4—5 mm.

The males have the last ventral segment broadly but feebly emarginate, the emargination straight at bottom; a small additional segment is visible.

This species is at once known by its broad form and the oblique impression in the basal angles.

Widely distributed in the Atlantic region.

C. maculatus Erichs.—Broadly oval, depressed, sparsely pubescent, margin of thorax and four spots on each elytron rufous. Head and thorax as in *morio* but without the oblique angular impression. Scutellum sparsely

punctured, smoother at apex. Elytra as in *morio* less densely and more irregularly punctured, surface piceous with four rufous spots, one in each angle, often confluent in broad vittæ. Abdomen above more sparsely punctate than the elytra. Prosternum nearly smooth. Body sparsely punctured. Last segment of abdomen with coarse rather sparsely placed punctures. Legs piceous. Length .16—.20 inch; 4—5 mm.

The male has the last ventral emarginate, a small additional segment visible, the emargination bisinuate at bottom.

Also of wide distribution, from the Middle States to Texas.

C. semitectus Say.—Elongate oval, much depressed, piceous, moderately shining, very sparsely pubescent, elytra reddish-yellow, sides and apex narrowly piceous. Head coarsely not densely punctate. Thorax one-half wider than long, sides moderately arcuate, apex narrower than the base, the latter feebly sinuate each side, surface rather coarsely not densely punctate, color piceous, lateral margins and hind angles usually paler. Scutellum punctate at base, apex smooth. Elytra conjointly very little wider than long, surface moderately densely punctate, the punctures subseriate near the suture, confused at sides and apex. Abdomen above more finely punctured than the elytra, and more sparsely placed. Prosternum very sparsely punctate. Body with coarse and moderately dense punctures. Abdomen less densely punctured. Legs piceous. Length .12—.18 inch; 3—4.5 mm.

The sexual characters are as in *maculatus*.

Of wide distribution in the Atlantic region.

C. unicolor Say.—Oblong oval, moderately depressed, piceous, subopaque, sparsely pubescent. Head moderately densely punctured. Thorax one-third wider at base than long, sides moderately arcuate, apex equal to the length, base nearly squarely truncate, surface densely and moderately finely punctured. Scutellum densely punctured. Elytra conjointly a little wider than long, densely punctulate, a little more finely than the thorax. Abdomen more finely and sparsely punctured than the elytra. Prosternum very sparsely punctate. Body coarsely punctured. Abdomen sparsely punctulate, more densely on the last segment. Legs rufo-piceous. Length .16—.18 inch; 4—4.5 mm.

The sexual characters are as in *morio*.

This species is remarkably uniform in color, the upper surface being piceous black, the under surface somewhat paler.

Widely distributed in the Atlantic region.

C. truncatus Rand.—Oval, slightly oblong, depressed, pale rufo-piceous, sparsely pubescent. Head coarsely and moderately deeply punctured. Thorax nearly twice as wide as long, narrowed in front, apex equal to the length, sides moderately arcuate, base very feebly sinuate each side, hind angles rounded, disc feebly convex, surface moderately densely punctate. Scutellum moderately densely punctured. Elytra conjointly a little wider than long, apices conjointly emarginato-truncate, surface moderately densely and irregularly punctate. Abdomen more sparsely punctured than the elytra. Prosternum nearly smooth. Body coarsely and moderately densely punctate. Abdomen sparsely, the last segment moderately densely punctate. Legs rufo-testaceous. Length .08—.10 inch; 2—2.5 mm.

The sexual characters are the same as in *morio*.

This species is rufo-piceous or rufo-testaceous in color, somewhat paler beneath than above, often with the margin of the elytra darker than the disc forming the synonym *limbatus*, others have the elytra piceous with an oblique paler spot on each and form *obliquus*. I cannot find that these differ specifically from *truncatus*. It is worthy of mention that in this species the intercoxal process of the prosternum is very narrow even at its tip.

Very widely distributed, Canada to Florida and Texas, also in California.

A careful examination based on dissection shows that the males really do have an additional segment beyond the pygidium, which is deflexed so strongly as to become apparently a member of the ventral series. By softening a specimen and gently withdrawing this segment it is found to have a thorough membranous connection with the last dorsal, while the anus is very plainly visible between this small segment and the fifth ventral. From the depression of the body of most of our species, the deception concerning the relationship of this segment is even greater than in *Carpophilus*, but in *Brachypeplus* the same is again repeated.

BRACHYPEPLUS Erichs.

Labrum short, transverse, very feebly emarginate. Antennæ with suddenly formed three-jointed club, antennal grooves shallow, convergent beneath. Abdomen with three segments exposed beyond the elytra, beneath first two segments short, equal, third and fourth equal, each as long as the first two united, fifth equal to the third and fourth. Tarsi feebly dilated. Body much depressed.

The males have an additional segment beyond the pygidium which appears equally dorsal and ventral at the same time, but its true nature is that of an ultra-pygidial segment strongly deflexed as in *Carpophilus*, but even more so, with the anal opening between the posterior edge of the fifth ventral and the appendicular segment.

The affinities of this genus seem to me well marked. It and *Conotelus* are slight modifications of one type, and the differences are even feeble and may be narrowed down to an alteration in attenuation and depression and a slight variation in the form of the antennal grooves. Mr. Murray places the present genus in the *Late-fimbriata* and *Conotelus* in *Anguste-fimbriata*, yet an examination fails to show any reason for this, for we find that *Conotelus stenoides* is certainly as

broadly margined as *Brachypeplus*. Following Murray, *Carpophilus* and *Colastus* are separated, but from the observation of material at my command these should be closely approximated at one end of a generic series, while *Cillæus*, *Brachypeplus* and *Conotelus* are in the other extreme. In fact Murray's "transition genera" show how little dependance can be placed on his two divisions above named.

We have but one species in our fauna.

B. glaber Lec.—Elongate, parallel, much depressed, reddish-brown, surface glabrous, abdomen piceous. Head moderately densely punctured. Antennæ rufous, club darker. Thorax quadrate, about a third wider than long, apex very feebly emarginate, base truncate, sides straight, very slightly arcuate in front, margin narrowly explanate posteriorly, hind angles rectangular, disc feebly convex, surface moderately coarsely but not densely punctured. Elytra a little longer than wide conjointly, surface striate, striæ indistinctly punctured, intervals flat with a series of moderately closely placed punctures. Abdomen above more finely punctured than the thorax, beneath more coarsely punctured than above. Length .12 inch; 3 mm. (Pl. III, fig. 28).

This species belongs to Murray's division *Liopeplus*, and more closely allied to *rubidus* than any other. The other species of this group are known only from western Africa.

Collected by Hubbard and Schwarz, at Enterprise, Florida; extremely rare.

CONOTELUS Erichs.

Labrum short, transverse, feebly emarginate. Antennæ terminated by a three-jointed club of rounded or oval form, flattened; grooves slightly convergent passing backward toward the posterior border of the head. Abdomen elongated, three joints exposed above, beneath first two short and equal, third and fourth of equal length each as long as the first two together, fifth elongate, flattened conical, longer than the preceding two together. Tarsi dilated.

The males have the terminal dorsal segment truncate and feebly emarginate with a small additional segment exposed.

The species of *Conotelus* have an elongate form and resemble Staphylinidæ, recalling *Trogophlœus*. They divide themselves into two series according as the abdomen is margined or not, the character being really parallel with that existing in *Stenus*.

Our species are as follows:

Abdomen acutely margined. Head slightly prolonged behind the eyes.
  Sides of thorax posteriorly sinuate. (Pl. III, fig. 11).....**stenoides.**
Abdomen not margined. Sides of thorax feebly arcuate. Eyes large occupying the entire side of the head. (Pl. III, fig. 10).
  Legs testaceous.....**obscurus.**
  Legs piceous black.....**mexicanus.**

C. stenoides Murr.—Elongate, slender, piceous black, opaque, sparsely pubescent. Antennæ testaceous, club piceous. Head moderately densely scabro-punctate. Thorax a little wider than long, slightly narrowed toward the base, sides very feebly arcuate, at hind angles sinuate, margin moderately prominent and distinctly crenulate, disc depressed scabrous and vaguely punctate. Elytra a little longer than wide conjointly, finely striate, intervals with a row of moderately coarse elongate punctures each bearing a semierect hair, surface subgranularly alutaceous. Abdomen acutely margined, alutaceous and sparsely punctate. Prothorax beneath rugulose, body and abdomen sparsely punctate. Length .14—.16 inch; 3.5—4 mm.

This species differs from all the others in many important particulars, among which the smaller size of the eyes and the prolongation of the head behind them is worthy of notice, the sinuation of the thorax and its crenulated margin occur nowhere else, while the acutely margined abdomen occurs in several foreign species.

Occurs Texas and Central America.

C. obscurus Erichs.—Elongate, subdepressed, black, opaque, sparsely pubescent, legs testaceous. Antennæ testaceous, club piceous. Head finely scabrous, sparsely punctate. Thorax one-third wider than long, slightly narrowed in front, sides in front feebly arcuate, posteriorly nearly straight, margin narrow not crenulate, hind angles obtusely rounded, disc moderately convex, surface finely rugulose, sparsely punctate. Elytra nearly square, usually less black than the thorax, surface very finely granular with numerous irregular rows of obsolete punctures. Abdomen moderately shining, finely alutaceous, sparsely punctate. Prothorax beneath rather smooth, shining, body and abdomen sparsely punctulate. Length .14—.16 inch; 3.5—4 mm.

Occurs from the Middle States to Florida.

C. mexicanus Murr.—Black, subopaque, very sparsely pubescent. Head densely punctate. Thorax rugulose very obsoletely punctate. Elytra finely rugulose with a faint tendency to a linear arrangement. Abdomen above less shining than *obscurus* and more decidedly punctate, beneath also more punctate. Length .16 inch; 4 mm.

This species closely resembles *obscurus* in every way, but the head is more decidedly sculptured and the elytra less so. The legs are entirely black.

I refer our specimens to this species rather than give it another name as it corresponds very closely with Murray's description, and the species around it are so very closely allied that I prefer not to add a synonym to those which will result from a new study with more material than Murray had.

Occurs in south-eastern California extending southward into the Peninsula.

NITIDULINI.

Maxillæ with a single lobe. Elytra nearly entire allowing at most a portion of the pygidium to be exposed. Thorax at base not overlapping the elytra.

These are in short the only characters separating this tribe from the preceding. The genera composing it may be arranged in the following manner:

Prosternum depressed behind the coxæ, not prolonged.....2.
Prosternum elevated behind, often prolonged.....6.
2.—Tarsi very distinctly dilated on all the feet.....3.
Tarsi not dilated or very feebly so.....4.
3.—Antennal grooves strongly convergent.
Labrum bilobed. Males with a sixth dorsal segment.....**Epuræa.**
Labrum feebly emarginate. Males without sixth segment...**Nitidula.**
Antennal grooves parallel, passing directly backwards.....**Stelidota.**
4.—Mentum broad covering the base of the maxillæ.....**Prometopia.**
Mentum not covering the maxillæ.....5.
5.—Front not lobed over the antennæ.
Mandibles with tip slightly bifid.....**Phenolia.**
Mandibles not bifid at tip.....**Omosita.**
Front lobed over the insertion of the antennæ.
Mandibles simple at tip, toothed posteriorly.....**Soronia.**
6.—Mesosternum not carinate.
Head without antennal grooves.
Anterior tibiæ not toothed externally.....**Thalycra.**
Anterior tibiæ bidentate at middle.....**Perthalycra.**
Head with distinct antennal grooves.
Tarsi not dilated. Body oval, pubescent.....**Pocadius.**
Front tarsi dilated. Body parallel and glabrous.....**Orthopeplus.**
Mesosternum carinate. Tarsi all dilated.....**Meligethes.**

In those genera in which the tarsi are said to be dilated, the assertion applies to all the feet. In those with the tarsi not dilated it will be observed that the males do sometimes have dilated front tarsi.

On comparing this table with that given in the "Classification" p. 83, several changes will be observed. *Lobiopa* has been changed to *Soronia* the two genera not differing. *Thalycra* known also in Europe has been added, following it two new genera, *Orthopeplus* and *Perthalycra* are indicated. The latter genus was named but never described by the late Mr. G. R. Crotch, and I adopt in full his names as given in the "Check List," the species having become generally known under this designation.

Very little can be said of the genera in the way of comparison than is already made use of in the table. I was at one time led to believe that the degree of development of the sexual segment might

give some clue to a natural arrangement of the genera. This segment is quite evident (nearly as much so as in *Carpophilus*) in *Epuraea* and *Thalycra*, and either feebly evident or wanting in the other genera, but in *Stelidota* one species has it quite well developed, the other two not. The dilatation of the tarsi does not seem a very good character inasmuch as the dilatation is apt to vary with the sexes and might mislead, but as synoptic tables are intended as helps rather than certain keys, the student must acquire by practical application an amount of experience which will enable him to avoid the errors necessarily arising from the too literal interpretation of the tables.

EPURAEA Erichs.

Labrum bilobed. Mandibles acute at tip with a small tooth posteriorly. Antennæ with abrupt three-jointed club; antennal grooves feeble convergent. Elytra truncate or entire. Tarsi dilated on all the feet, sometimes feebly on the posterior.

Males with an additional anal segment, often with the middle and posterior tibiæ dilated at tip.

Of all the genera this is probably the most troublesome in the determination of the species, and their proper separation has cost more time and labor than all the other genera together. All the species described from our fauna have been seen by me with one exception, this will be mentioned further on.

Mr. E. Reitter (Verhandl. des naturforsch. Vereins, vol. xii, Brünn, 1874), gives synoptic tables of the species of this genus dividing them primarily into European and exotic, a procedure not warranted in nature as several species are found around the globe in the northern regions. During the next year (loc. cit. vol. xiii, 1875), Mr. Reitter divides *Epuraea* into a number of genera on some characters which our series shows to be extremely feeble and untenable, these are:

Omosiphora, based on those species with the posterior coxæ widely separated, (*rufa*, *helvola*, etc.) This is a gradually evanescent character. Crotch in 1874, proposed the name *Epuraeanella* for these species. *Haptoncura* is based on *luteola* and others with a supposed larger labrum.

Micruria including *macrophthalma*, based on species with the claws toothed. This is the species mentioned above as unknown to me and it seems to me doubtful as a member of our fauna, one of the species included in the genus being European, the others from Japan and Madagascar. This genus is probably a valid one but the species is probably not from our fauna.

In all attempts at an arrangement of the species of *Epuraea* which have been hitherto made, the extent of separation of the hind coxæ has been taken as a starting point, and this has been so magnified in importance that Reitter and Crotch have proposed to separate those species with distant coxæ under generic or subgeneric names. I am satisfied that any arrangement on this basis will produce anything but a natural sequence of species.

The sexual characters of the males seem to afford the means for a very natural grouping and as that sex have one peculiarity in common, the additional segment and special characters peculiar to series only, we have in the first instance the means of determining the males with unerring certainty and the group to which they should be referred almost as positively.

These groups may be defined as follows:

Middle tibiæ dissimilar in the two sexes, that of the male sinuate within and thickened at tip, that of the female slender. (Pl. III, fig. 19).....GROUP I.
Middle tibiæ similar in the two sexes, slender.
Posterior tibiæ of both sexes similar and slender.....GROUP II.
Posterior tibiæ of the male slightly arcuate, slender at basal half, suddenly broader at apical half. (Pl. III, fig. 20).....GROUP III.

These are the only groups known in our fauna, others occur in Europe with the femora dentate beneath or the posterior tibiæ toothed at middle, in the male.

GROUP I.

This group contains by far the larger number of the species in our fauna as well those of the greatest size. The middle tibiæ of the male are sinuate on the inner margin the apex being prolonged inward to a greater or less extent, the outer apical angle being obliquely truncate. This set of characters varies in the degree of development so that in *rufida* the middle tibia becomes deformed in aspect, while in *fulvescens* the sinuation is barely perceptible and the tibia seems to be merely stouter than that of the female.

The species arrange themselves in the following manner:

A.—Intercoxal process of abdomen broad, truncate.
Sides of thorax moderately arcuate, gradually broader to base.
Form oblong, color piceous, elytra conjointly not as wide as long. **monogama.**
Form broadly oval, color yellow, elytra conjointly as wide as long. **Hornii.**
Sides of thorax strongly arcuate, at base narrowed or sinuate, hind angles acute, slightly prominent.
Form broadly oval, elytra narrower at apex.....**helvola.**
Form more oblong, elytra scarcely narrowed to tip.....**rufa.**

B.—Intercoxal process of abdomen narrow, acute, metasternum usually acutely notched posteriorly for its reception.

Elytra obliquely prolonged, not truncate.

Middle tibiæ male feebly dilated at tip.....**integra.**

Middle tibiæ male rather strongly dilated.....**ambigua.**

Elytra truncate at tip.

Form oblong oval.

Middle tibiæ ♂ strongly sinuate within, the inward prolongation of the tip well marked.

Thorax broadest at base, hind angles rectangular.....**Erichsonii.**

Thorax narrowed at base.

The sides simply arcuate, hind angles not prominent.....**rufida.**

The sides sinuate posteriorly, hind angles rather acute...**corticina.**

Middle tibiæ ♂ feebly sinuate, the tip merely thickened.

Thoracic margin explanate, usually sinuate near the base, hind angles subacute and prominent.....**avara.**

Club of antennæ dark.....**immunda.**

Club of antennæ pale.....**adumbrata.**

Thorax slightly arcuate near the base, the hind angles obtuse, margin not explanate.....**fulvescens.**

Form elongate, parallel. Middle tibiæ ♂ feebly sinuate.

Joints 3—4—5 of antennæ moderately elongate.

Surface subopaque, very indistinctly punctate. Thorax not sinuate posteriorly.....**linearis.**

Surface moderately shining, distinctly punctate. Thorax sinuate posteriorly.....**truncatella.**

Joint 3 only elongate, 4—8 short.

Surface distinctly punctate. Sides of thorax slightly arcuate posteriorly.....**planulata.**

E. monogama Crotch.—Oblong oval, piceous, moderately shining, surface sparsely clothed with very short brownish pubescence. Head moderately densely punctulate. Antennæ rufous, joints 3—4—5 equal, 6—7—8 equal, each half the length of the three preceding joints. Thorax twice as wide as long, sides moderately arcuate, gradually narrowed from base to apex, margin rather widely depressed, slightly reflexed, apical margin moderately emarginate, base sinuate on each side, anterior angles obtuse, posterior angles rectangular, slightly obtuse, disc moderately densely punctulate. Elytra longer than wide conjointly, slightly narrowed to apex which is truncate, margin reflexed, surface punctured similarly to the thorax. Body beneath moderately densely punctulate. Intercoxal process of abdomen broad, truncate. Length .20 inch; 5 mm.

Male.—An additional small dorsal abdominal segment. Middle tibiæ sinuate within, dilated at tip and prolonged inwards.

Female.—Abdomen without additional dorsal segment. Middle tibiæ simple, gradually dilated from base to tip.

This is the largest species in our fauna, and may be readily distinguished by its piceous color and the characters given in the table.

Occurs in Vancouver and throughout the Sierra Nevada, in a

small white globular fungus growing on dead pines, each fungus having a pair of the species.

E. Hornii Crotch.—Broadly oval, fulvous, feebly shining, surface sparsely clothed with short fulvous pubescence. Head sparsely punctulate. Antennæ fulvous, joints of funicle proportioned as in *monogama*. Thorax nearly twice as wide as long, sides moderately arcuate and gradually narrowed from apex to base, and with a feeble sinuation in front of the basal angles which are small and acute, apex feebly emarginate, angles obtuse, margin flattened, more widely explanate posteriorly and very slightly reflexed, surface moderately densely punctulate. Elytra conjointly as wide as long, broadest near the middle, apices rotundato-truncate, margin explanate and reflexed, surface moderately densely punctulate. Prothorax beneath nearly smooth, at sides transversely wrinkled. Abdomen rather more coarsely punctured than the upper surface. Intercoxal process broad. Epipleuræ very sparsely punctulate. Length .16—.18 inch; 4—4.5 mm.

The sexual characters in this species are the same as in *monogama*, and Mr. Crotch's remarks are erroneous.

The form of this species is nearly that of *helvola* but even broader, its color and size making it one of the most conspicuous species in our fauna.

Occurs near Grimsby, Canada, whence specimens were sent me some years ago by Mr. Johnson Pettit.

E. helvola Erichs.—Broadly oval, piceous brown, feebly shining, sparsely clothed with short brownish pubescence. Head coarsely and densely punctured. Antennæ as in *monogama*, brownish, club darker. Thorax rather more than twice as wide as long, apex deeply emarginate, base subtruncate, sides strongly arcuate slightly narrowing at base, sinuate in front of the hind angles which are subacute and slightly prominent, margin broadly explanate and slightly reflexed, surface moderately densely punctate and subgranulate. Elytra oval, a little longer than wide, narrower at apex, moderately convex, suture slightly elevated, margin reflexed but gradually evanescent to the tip which is truncate, surface moderately densely punctulate with a subgranular aspect. Body beneath moderately densely punctate. Femora rather coarsely and densely punctate. Intercoxal process broad, truncate. Length .12 inch; 3 mm.

The sexual characters are as in *monogama*, but the sinuation of the middle tibiæ and the prolongation inwards at tip still more pronounced.

The color of this species varies somewhat, usually entirely piceous brown, often with the entire margin and suture more or less rufous. The hind angles of the thorax vary a little in the degree of their prominence, as well as the sinuation in front of them.

Mr. E. Reitter (Verhandl. des Naturf. Vereines in Brünn, xii), has apparently separated two color varieties of this species, to one of

which he gives the name *helvola*, the other *rufa*, the true form of the latter being described as a new species.

Occurs abundantly in the entire region east of the Rocky Mts.

E. rufa Say.—Oval, rufo-piceous, moderately shining, sparsely pubescent. Head moderately densely punctate. Antennæ rufous, club darker, funicle as in *monogama*. Thorax rather more than twice as wide as long, very little narrower at apex than at base, sides strongly arcuate, obliquely narrowed and very feebly sinuate near the base, hind angles acute moderately prominent, margin moderately explanate but not reflexed, basal margin sinuate on each side, surface moderately densely punctate. Elytra oval, longer than wide, sides feebly arcuate and slightly narrower to base, margin narrow and slightly reflexed, surface irregular, densely punctate, apex rotundato-truncate. Body beneath moderately densely punctate, more coarsely than the upper surface. Intercoxal process of abdomen broad, truncate. Femora coarsely and densely punctate. Length .12—.14 inch; 3—3.5 mm.

The sexual characters are as in *helvola*, the inner edge of the middle tibia of the male being rather deeply sinuate and at apex prolonged inwards.

This species is often confounded with *helvola* in collections, from which however it abundantly differs in its more oblong form and longer elytra which are scarcely narrowed to tip and very narrowly margined. It has in some cabinets the *mss.* name *punctatus*. The determination of the synonym above has been made from a specimen received directly from Mr. Reitter, who places it erroneously with those species in which the intercoxal process is triangular, the hind coxæ being widely separated as in *helvola*, the process broad and truncate.

Occurs over a great extent of the Atlantic and Gulf region.

E. integra n. sp.—Oblong oval, rufo-testaceous, slightly shining, sparsely clothed with fulvous pubescence. Head moderately densely punctate. Antennæ pale rufous, club darker. Thorax rather less than twice as wide as long, base wider than apex, sides moderately arcuate, near the base obliquely narrowed and slightly sinuate, hind angles acute, moderately prominent, margin moderately explanate, slightly reflexed, apex moderately emarginate, base slightly sinuate on each side, surface moderately densely punctulate. Elytra oblong oval, one-third longer than wide, sides feebly arcuate and slightly narrowed to tip, margin narrowly reflexed, apices conjointly rounded, suture slightly dehiscent at tip, surface moderately densely punctulate. Body beneath and femora moderately densely punctulate. Intercoxal process of abdomen triangular. Length .12—.14 inch; 3—3.5 mm.

The sexual characters of the male are as in the preceding species, but the sinuation of the middle tibia of the male and the inward prolongation of the tip are feeble.

The form of the elytral tip, the absence of truncation, occurs in

but few species in the entire genus, the elytra are in fact so complete that merely the tip of the pygidium is exposed.

Specimens are before me from Fort Whipple, Arizona, collected by Dr. Palmer, others from Colorado, by Morrison.

E. ambigua Mann.—Oblong oval, rufo-testaceous, elytra often clouded with fuscous, surface slightly shining, sparsely pubescent. Head sparsely punctulate. Antennæ rufous, club darker, funiculus as in *monogama*. Thorax nearly twice as wide as long, apex feebly emarginate, base a little wider than apex, broadly arcuate at middle, sides moderately arcuate, near the base obliquely narrowing, margin explanate and slightly reflexed, hind angles rectangular, surface sparsely punctulate. Elytra oblong oval, gradually narrowed to apex, one-half longer than wide at base, margin very narrowly reflexed, obsolete near the tip, surface finely and rather sparsely punctulate. Body beneath sparsely punctulate, abdomen more evidently, prothoracic side pieces smooth. Femora sparsely punctulate. Length .15 inch; 3.75 mm.

The sexual characters are as in *integra* but better marked, the sinuation of the middle tibia of the male being stronger and the inward prolongation of the tip greater.

The elytra are prolonged rather obliquely and there is but little separation at the tip, so that the abdomen is completely concealed. The sculpture is finer than in *integra* and there is no trace of sinuation of the side margin of the thorax, merely an oblique narrowing.

Occurs from Alaska to California.

E. Erichsonii Reitter.—Oblong oval, pale luteous, moderately shining, sparsely clothed with fulvous pubescence. Head sparsely punctate. Antennæ pale luteous, formed as in *monogama*. Thorax less than twice as wide as long, slightly narrowed in front, apex feebly emarginate, base feebly sinuate on each side, sides feebly arcuate and subparallel behind, hind angles rectangular, margin feebly depressed, slightly reflexed, surface moderately densely and rather coarsely punctate. Elytra one-third longer than wide, sides feebly arcuate and slightly narrower to apex, tips truncate, margin narrowly reflexed, disc subdepressed, surface moderately densely punctate. Thorax beneath comparatively smooth, body and abdomen rather coarsely and densely punctate. Femora rather coarsely but sparsely punctate. Intercoxal process triangular acute. Length .10—.12 inch; 2.5—3 mm.

The sexual characters are as in *Hornii*, the sinuation of the middle tibia of the male being rather deep and the inward prolongation of the tip well marked.

For a type of this species I am indebted to Mr. Reitter, through the kind intercession of Dr. C. A. Dohrn.

Occurs from Canada to Georgia, and is not rare. It has been confounded with *labilis* Er., from which the sexual characters of the male are the only ones to be relied on to distinguish it.

E. rufida Mels.—Oblong oval, rufo-testaceous, moderately shining, sparsely clothed with fulvous pubescence. Head densely and moderately coarsely punctured. Antennæ pale rufous, club slightly darker, joints proportioned as in *monogama*. Thorax less than twice as wide as long, a little narrower at apex than base, apex feebly emarginate, base very feebly sinuate on each side, sides moderately arcuate, narrowed obliquely for a very short distance in front of base but not sinuate, hind angles rectangular, margin moderately widely explanate and very slightly reflexed, surface densely punctured. Elytra one-half longer than wide, sides parallel in front, slightly arcately narrowing at apical third, margin narrowly reflexed, apex truncate, surface densely punctulate. Prothorax comparatively smooth beneath, body and abdomen densely punctured. Femora sparsely punctulate. Intercoxal process acute. Length .14—.16 inch; 3.5—4 mm.

The male has the sexual characters of the middle tibia better marked than any other species in our fauna, the inward prolongation at the tip being so well developed as to be really a decided deformity.

The specimens before me have all been collected in Pennsylvania.

E. corticina Erichs.—Oblong oval, rufo-testaceous, disc of thorax and elytra clouded with darker color, sparsely clothed with fulvous pubescence. Head sparsely punctured, frontal impression divided, moderately deep. Antennæ rufo-testaceous, club somewhat darker, structure as in *monogama*. Thorax one-half wider than long, apex slightly narrower than base, sides rather strongly arcuate, near the base sinuate, hind angles acute, slightly prominent, margin narrowly reflexed, disc at middle piceo-rufous, surface moderately densely punctulate. Elytra one-third longer than wide, sides feebly arcuate and slightly narrower towards the tip which is truncate, margin narrowly reflexed, surface moderately densely punctulate, disc clouded with fuscous. Body beneath piceo-rufous, moderately punctulate. Legs paler, femora sparsely punctulate. Intercoxal process triangular acute. Length .14 inch: 3.5 mm.

The middle tibiæ of the male are moderately strongly sinuate within, and the apex prolonged inwards but less than in *rufida*.

The elytra are usually clouded without any attempt at design, some specimens however have the disc fuscous with a large oval apical spot paler, a smaller near the humeri and also the suture and margin paler. It has a superficial resemblance to *immunda*, but may be known by the sexual characters.

Occurs especially in the Gulf States.

E. immunda Sturm.—Oblong oval, depressed, moderately shining, sparsely pubescent, color variable. Head moderately densely punctured. Antennæ pale, club piceous, structure as in *monogama*. Thorax twice as wide as long, narrower in front than base, apex feebly emarginate, base very feebly sinuate on each side, sides moderately arcuate, posteriorly obliquely but very feebly narrowed, hind angles rectangular, margin moderately explanate and feebly reflexed, surface moderately densely punctured. Elytra one-fourth

longer than wide, sides feebly arcuate and slightly narrowing to apex which is obtusely truncate, margin rather wide and very distinctly reflexed. Body beneath rather densely and coarsely punctate. Length .12—.14 inch; 3—3.5 mm.

The male has the middle tibia sinuate within near the tip and very feebly prolonged inwards. This character is so feeble as to require care in observation.

The color of the specimens is variable, some being entirely pale or fulvous, others have the middle of the thorax fuscous and the sides of the elytra darker, the dark color forming a space exterior to a line drawn from the humeri to the suture at apex. The variety *flavomaculata* is piceous, the thoracic and elytral margins paler, the disc of each elytron with two oval, pale spots.

I have seen several types sent by Mäklin, one of which (that sent me by Dr. Dohrn of Stettin), enabled Mr. Reitter to fix the synonymy with *immunda*.

Occurs from Alaska to Massachusetts.

E. adumbrata Mann.—This species so closely resembles the preceding that I merely give the following distinctive characters. Thorax posteriorly distinctly sinuate. the hind angles acute and slightly prominent. Elytra very narrowly margined, margin feebly reflexed, apices rotundato-truncate. Length .12 inch; 3 mm.

The male has a form of middle tibia similar to the next species. I have however seen the other sex only.

Occurs in Alaska.

The four species with very feeble development of sexual characters although very closely allied are readily distinguished in nature; *fulvescens* has the sides of the thorax rounded near the base, and the margin not at all explanate; *avara* has the antennæ entirely pale and the sides of the thorax distinctly sinuate near the hind angles; *immunda* and *adumbrata* have the antennal club piceous, the former has the sides of the thorax very distinctly sinuate near the hind angles but the elytral margin is very narrow, the latter species has the sides obliquely narrowed posteriorly and the elytral margin rather wide.

E. avara Rand.—Elongate oval, rufo-testaceous, moderately shining, sparsely pubescent. Head sparsely punctate. Antennæ as in *corticina*. Thorax one-half wider than long, slightly narrower in front than at base, sides feebly arcuate, slightly obliquely narrowed posteriorly, hind angles rectangular, margin reflexed, disc moderately densely punctate. Elytra one-half wider than long, sides feebly arcuate and gradually narrowed posteriorly, apex truncate, margin reflexed, disc moderately densely punctate and often with

three indistinct fuscous spots on each. Body beneath and legs colored as above, moderately densely punctate. Intercoxal process triangular acute. Length .12—.14 inch; 3—3.5 mm.

The male has the same sinuate middle tibia as in the preceding species but very much less marked, so that without a careful observation of the tibia extended it might be supposed to be simple. In this respect it differs notably from *corticina*, although there are other characters, such as the less arcuate sides of the thorax and less prominence of the hind angles and usually smaller size, more elongate and depressed form.

Occurs all over the United States and Canada, and from its wide distribution may be an introduced species, but from the published descriptions I have not been able to identify it satisfactorily.

E. fulvescens n. sp.—Oblong oval, fulvous, moderately shining, sparsely pubescent. Head sparsely punctate, frontal impression moderately deep. Antennæ fulvous, formed as in *monogama*. Thorax less than twice as wide as long, apex narrower than base, sides feebly arcuate, hind angles rectangular, base distinctly sinuate on each side, margin very narrowly reflexed, surface moderately densely punctulate. Elytra one-fourth longer than wide, sides feebly arcuate and slightly narrowed posteriorly, apex truncate, margin narrowly reflexed, surface punctured like the thorax. Body beneath moderately densely punctate, femora sparsely and finely punctulate. Length .12—.14 inch; 3—3.5 mm.

The middle tibiæ of the male are stouter than the posterior, somewhat sinuate within and thickened at tip, without however having the abrupt dilatation so often seen. Superficially the species greatly resembles *Erichsonii* of this group and *labilis* of the following, from both of which it differs by its larger size and less distinct punctuation, the former species having the middle tibiæ of the male suddenly dilated at tip, while the latter species has absolutely simple tibiæ.

All the specimens I have seen were collected by Mr. Johnson Pettit, at Grimsby, Canada.

E. linearis Mäkl.—Elongate, parallel, piceo-rufous, subopaque, sparsely pubescent. Head sparsely obsoletely punctulate. Antennæ rufous, joints 6—7—8 small and very short. Thorax one-third wider than long, very little wider at base than apex, sides feebly arcuate, margin very narrowly reflexed, apex feebly emarginate, base truncate, hind angles obtusely rectangular, disc subopaque, very obsoletely finely punctate. Elytra rufous clouded with piceous, parallel, one-half longer than wide, margin very narrowly reflexed, apex rotundato-truncate, disc sculptured like the thorax. Body beneath darker than above, sparsely punctate. Legs rufo-testaceous, femora very sparsely finely punctate. Length .14 inch; 3.5 mm.

The middle tibiæ of the male are sinuate within near the tip and dilated inwards.

This species may be known from any in our fauna, except the next two, by its elongate parallel form, and from these by the opaque surface and form of thorax.

Occurs from Alaska to British Columbia.

E. truncatella Mann.—Elongate, parallel, piceo-testaceous or nearly black, sparsely pubescent, moderately shining. Head sparsely punctate. Antennæ rufous, club darker, funicle as in *monogama*. Thorax one-third wider than long, very little narrower in front, sides feebly arcuate and at posterior third obliquely narrowed, hind angles subrectangular, apex feebly emarginate, base truncate, margin narrowly explanate, more widely posteriorly and very slightly reflexed, surface densely punctate. Elytra parallel, slightly narrowed near the apex which is obtusely truncate, margin narrowly reflexed, disc slightly depressed, surface less densely punctured than the elytra. Body beneath moderately densely punctate. Femora sparsely punctulate. Length .10—.12 inch; 2.5—3 mm.

The sexual characters are as in *linearis*.

This species has a wide distribution and is found in Canada, Colorado, California, Oregon, and northward to Alaska. It varies in color and slightly in elongation, and resembles somewhat the next species.

E. planulata Erichs.—Elongate, rufo-piceous, moderately shining, sparsely pubescent. Head sparsely punctulate. Antennæ extending very little beyond the middle of the thorax, rufous, club piceous, joint 3 moderately elongate, 4—8 short. Thorax one-third wider than long, apex slightly narrower than base and feebly emarginate, sides moderately arcuate, very slightly narrowing at the base, margin moderately explanate but not reflexed, hind angles rectangular, base truncate, surface moderately densely punctulate. Elytra nearly one-half longer than wide, slightly narrowed toward the tip which is rotundato-truncate, margin narrowly reflexed, surface punctured like the thorax. Body beneath with moderately dense punctures coarser than those of the upper surface. Femora sparsely punctulate. Length .10—.12 inch; 2.5—3 mm.

The sexual characters are as in *truncatella*.

This species resembles *truncatella* but the sides of the thorax are not obliquely narrowed posteriorly. The antennæ are also shorter and differently formed.

All the specimens before me are from Alaska.

Group II.

In this group, which contains but few species, the tibiæ present no sexual characters whatever. Here also we have species with the posterior coxæ widely separated, and one (*peltoides*), in which the posterior femur of the male is very obtusely subangulate near the tip.

The species are as follows :

Intercoxal process broad, obtuse.
  Elytra narrowly margined. Posterior femora ♂ simple.....**ovata.**
  Elytra widely margined. Posterior femora ♂ obtusely subangulate.
peltoides.
Intercoxal process triangular, more or less acute.
  Last joint of antennæ larger than the preceding.....**æstiva.**
  Last joint of antennæ narrower and smaller than the preceding.
    Elytra rounded or truncate at tip.
      Thoracic margin rather narrowly explanate, hind angles distinct.
        Thorax regularly arcuately narrowed from base to apex.....**labilis.**
        Thorax widest in front of middle.....**umbrosa.**
      Thoracic margin widely explanate, hind angles obtuse...**obtusicollis.**
    Elytra conjointly emarginate at tip.
      Margins of thorax and elytra widely reflexed.....**scapholdes.**

E. ovata n. sp.—Oval, piceous, moderately shining, sparsely clothed with short greyish pubescence. Head piceo-rufous, moderately densely punctulate. Antennæ rufous, club piceous, structure as in *monogama*. Thorax twice as wide as long, apex narrower than base and deeply emarginate, sides strongly arcuate, suddenly sinuate posteriorly, hind angles rectangular and slightly prominent, margin widely explanate and moderately reflexed, base on each side sinuate, surface piceo-rufous, moderately densely punctate. Elytra piceous, margin paler, very little longer than wide at base, sides arcuate and gradually narrowing to the apices which are conjointly rounded, margin narrowly reflexed, surface moderately densely punctate. Body beneath densely punctured. Legs piceous, femora moderately densely punctate. Intercoxal process broadly oval. Length .10—.12 inch; 2.5—3 mm.

The middle tibiæ of the male are absolutely simple and not stouter than the corresponding portions of the female.

This species might be mistaken for a diminutive *helvola*, but besides its smaller size the sides of the thorax more suddenly sinuate posteriorly, the apices of the elytra not truncate and the sexual characters of the male will serve to disinguish it.

Occurs in Michigan, (Schwarz), Canada, (Pettit), and California, (Crotch).

E. peltoides n. sp.—Rather broadly oval, piceous, elytra maculate, moderately shining, very sparsely pubescent. Head piceo-testaceous, sparsely punctate. Antennæ rufous, club darker, structure as in *monogama*. Thorax twice as wide as long, narrower in front, apex deeply emarginate, base feebly sinuate on each side, sides rather strongly arcuate, at basal third subparallel and feebly sinuate, hind angles rectangular, margin broadly explanate and moderately reflexed, disc convex rather sparsely punctate, color piceous, margin broadly median line narrowly testaceous. Elytra nearly as wide as long, sides gradually arcuately narrowing, margin broadly explanate and moderately reflexed, apex rotundato-truncate, disc moderately convex, punctured like the thorax, color piceous, margin and four oval, badly defined paler spots on each side

paler. Body beneath paler than above, rather sparsely and finely punctate. Intercoxal process moderately broad, obtuse at tip. Length .10 inch; 2.5 mm.

The tibiæ of the male are all simple as in the female, the posterior femora are however obtusely subangulate near the tip.

In form this species resembles *helvola*, and is equally widely margined.

Occurs in Michigan, (Schwarz), also in Maryland.

E. sestiva Linn.—Oval, slightly oblong, rufo-testaceous, moderately shining, sparsely pubescent. Head densely punctate. Antennæ as in *monogama*, pale rufous. Thorax nearly twice as wide as long, apex very feebly emarginate and narrower than the base which is very feebly sinuate on each side, sides moderately arcuate, hind angles obtusely rectangular, margin narrowly explanate and slightly reflexed, disc moderately convex and with a slight depression near the hind angles, surface moderately densely punctured. Elytra one-fourth longer than wide, sides slightly arcuate and gradually narrowed to apices which are separately rounded, margin narrowly reflexed, disc moderately convex, a little less densely punctured than the thorax. Body beneath rather densely punctured, more coarsely than the upper surface. Intercoxal process acutely oval in front. Length .12—.14 inch; 3—3.5 mm.

The tibiæ are simple and similar in the two sexes.

The terminal joint of the antennal club is somewhat quadrangular and nearly equal in size to the two preceding joints together, and in the female rather larger than the male. This will distinguish this species from any other in our fauna.

Occurs in Alaska.

E. labilis Erichs.—Oval, rufo-testaceous, moderately shining, sparsely pubescent. Head moderately densely and coarsely punctured. Antennæ pale, formed as in *monogama*. Thorax twice as wide as long, apex narrower than base and feebly emarginate, sides regularly arcuate and gradually narrowing from base to apex, margin narrowly reflexed, hind angles rectangular, surface rather coarsely and moderately densely punctured. Elytra one-third longer than wide, sides feebly arcuate and slightly narrowing posteriorly, apex truncate, margin narrowly reflexed, surface punctured similarly to the thorax. Body beneath moderately densely punctulate. Intercoxal process triangular acute. Length .08—.10 inch; 2—2.5 mm.

The tibiæ are simple and similar in the two sexes.

Although always smaller this species resembles two already described, *Erichsonii* and *fulvescens*, and excepting size I know of no means of distinguishing with certainty the females. The male characters are however quite distinct as will be seen by reference to these species.

Occurs from Michigan to Georgia, and is rather common.

E. umbrosa n. sp.—Oval, slightly oblong, rufo-testaceous, moderately shining, sparsely pubescent. Head coarsely punctured, frontal impression moderately deep. Antennæ pale, formed as in *monogama*. Thorax less than twice as wide as long, apex feebly emarginate, slightly narrower than the base which is distinctly sinuate on each side, sides feebly arcuate and slightly narrower at base than at middle, hind angles rectangular, margin narrowly reflexed, surface rather coarsely and moderately densely punctured. Elytra one-fourth longer than wide, slightly narrower posteriorly, sides feebly arcuate, margin narrowly reflexed, apex truncate, surface clouded with fuscous, punctured similarly to the thorax. Body beneath moderately densely punctate. Intercoxal process triangular acute. Length .14 inch; 3.5 mm.

Sexual characters as in *labilis*.

This species resembles a large *labilis*, but the thorax is narrower at base than at middle, the surface more coarsely punctured and the elytra clouded with fuscous, so that an oval pale intra-humeral spot and another subapical are indicated.

Two specimens, Fort Cobb, Indian Territory.

E. obtusicollis Reitter.—Ovate, rufo-testaceous, feebly shining, sparsely pubescent. Head moderately densely punctate. Antennæ pale, club fuscous. Thorax rather more than twice as wide as long, apex feebly emarginate, narrower than the base which is feebly sinuate on each side, sides feebly arcuate, hind angles obtusely rounded, margin rather widely explanate and slightly reflexed. Elytra one-fourth longer than wide, slightly narrowed toward apex which is rotundato-truncate, margin rather narrowly reflexed, surface (also the thorax), moderately densely punctate. Body beneath moderately densely punctate. Length .10 inch; 2.5 mm.

The male has no sexual characters excepting the additional dorsal segment. The elytra are obliquely infuscate at the sides.

I have seen only Mr. Reitter's type, which privilege I owe to the great kindness of Mr. Chevrolat, through the intercession of M. Sallé.

Its habitat is vaguely stated Am. Bor., and may not be from our country.

E. scaphoides n. sp.—Elongate oval, rufo-testaceous, moderately shining, sparsely pubescent. Head moderately densely punctate. Antennæ rufous, formed as in *monogama*. Thorax one-third wider than long, slightly narrower in front, apex deeply emarginate, base truncate, sides very feebly arcuate, hind angles rectangular, margin widely explanate and broadly reflexed, surface moderately densely punctate. Elytra one-third longer than wide, slightly narrower posteriorly, apices conjointly emarginate, margin rather widely explanate and broadly reflexed, surface punctured as the thorax. Body beneath piceous, not densely punctate. Legs pale. Intercoxal process triangular acute. Length .12 inch; 3 mm.

Sexual characters as in *labilis*.

This is one of the most peculiar species in our fauna, if it

really belongs to the genus. I feel unwilling with the material before me to separate it, in fact there is no character in which it differs from *Epuraea*, although I suspect that the tarsi are not dilated, there is however but one tarsal joint remaining in the specimen in my cabinet, although I have seen two others equally mutilated. It resembles a miniature *Embaphion* with the elytra conjointly emarginate.

Collected in Colorado, by H. K. Morrison.

GROUP III.

This group contains but one small species in which the posterior tibiæ of the male are slender at the basal two-fifths, while the apical portion is rather suddenly twice as wide as it. (Pl. III, fig. 20).

E. luteola Erichs.—Oval, slightly oblong, fulvo-testaceous, moderately shining, sparsely pubescent. Head sparsely punctulate. Antennæ pale, club darker, formed as in *monogama*. Thorax nearly twice as wide as long, narrowed in front, apex feebly emarginate, base truncate, sides feebly arcuate, hind angles rectangular, margin very narrowly reflexed, surface not densely punctate. Elytra very little longer than wide, slightly narrowed posteriorly, apex truncate, margin very narrowly reflexed, disc moderately convex punctured like the thorax. Body beneath rather finely and sparsely punctulate. Length .08—.09 inch; 2—2.25 mm.

The middle tibiæ are simple in the two sexes. The posterior tibiæ of the male are slightly arcuate, the basal half slender, the apical half rather suddenly broader although not much dilated. Mr. Crotch's reference of this species to *Dadopora* Thoms., associating it with *decemguttata* is entirely erroneous.

This species is one of the smallest in our fauna, and the females can be distinguished from those of *labilis* by the sparser punctuation and more narrowly reflexed margin, they otherwise greatly resemble that species.

In distribution this species appears to be becoming cosmopolitan. Originally occurring in our Gulf States and Cuba, it has spread to Europe, (Reiche), and Ceylon, (Murray).

Mr. Reitter has placed this species in a genus of his own creation, *Haptoncura*, the characters of which seem to me entirely too feeble to adopt.

In addition to the foregoing species, Mr. Reitter describes from our fauna:

E. macrophthalma Reitter.—Elongata, subdepressa, subnitida, levissime punctulata, tenuiter puberula, testaceo-ferruginea, antice attenuata; oculis grandibus, nigris, thorace transverso, antice et apice subtruncato, lateribus levissime rotundatis, antice valde angustatis, vix marginato-reflexis; elytris

thorace paulo latioribus, elongatis, subparallelis, apice truncatis, pygidium ex parte obtegente; unguiculi basi dentati. Long. 3.4 mm, (.14 inch).

I have not seen anything corresponding with this. The locality is in all probability erroneous.

Mr. Reitter has since placed this in a new genus, *Micruria*, with other species.

E. flavescens Reitter, cited as having been collected in Chicago, is from Chiapas, Mr. Sallé having kindly examined the type in Chevrolat's cabinet.

I would here call the attention of those having occasion to use Mr. Reitter's descriptions, that what everybody else calls the base of the thorax, he calls the apex. I have several times been confused by this form of expression.

NITIDULA Fab.

Antennæ eleven-jointed, terminated by a suddenly formed club of three joints, received in grooves beneath and in front of the eyes. Labrum feebly emarginate. Maxillary palpi rather slender, the terminal joint longest, subacute at tip. Prosternum dilated at tip, not prolonged. Tarsi feebly dilated, the third joint feebly emarginate. Abdominal segments 2—5 equal, the first very little longer. Males without accessory segment.

This genus is allied closely to *Epuraea* but differs in the form of the labrum, somewhat also in the length of the abdominal segments, the rather less dilated tarsi and the sexual character.

Three species are known in our fauna, briefly distinguished as follows:

Thorax coarsely and moderately densely punctured.
  Piceous, each elytron with discal rufous spot.....**bipustulata.**
  Piceous, elytra uniform.....**rufipes.**
Thorax sparsely and rather finely punctured.
  Elytra variable, often ornate with irregular paler spots.....**zicxac.**

N. bipustulata Linn.—Oval, feebly convex, piceous, finely pubescent, each elytron with rufous spot, legs rufous. Head coarsely punctured. Thorax twice as wide at base as long, apex a little broader than the length, sides moderately arcuate, margin moderately explanate, hind angles nearly rectangular, surface rather coarsely and moderately densely punctured. Elytra longer than wide conjointly, rather sparsely and finely punctured, finely pubescent. Pygidium densely punctured. Body beneath rather coarsely and densely punctured. Length .16—.20 inch; 5—6 mm.

I am unable to detect any sexual differences, except that the last ventral of male is a little less arcuate at apex.

Originally described from Europe, this species is now found everywhere in the Atlantic and Gulf States.

N. rufipes Linn.—Oval, slightly oblong, piceous, subopaque, pubescent, antennæ (except club), and legs rufous. Thorax less than twice as wide as long, apex but little narrower than base, sides moderately arcuate, margin narrowly explanate, surface densely and coarsely punctured. Length .14—.16 inch: 3.5—4 mm.

This species is closely allied to the preceding but is without elytral spot, of a little more elongate form, the thorax much less narrowed in front and the sides less explanate.

Introduced from Europe into the Eastern States and Canada.

N. zicsac Say.—Oblong oval, piceous, subopaque, pubescent, elytra with basal spots and a median sigmoid band testaceous. Head moderately finely not densely punctured. Thorax a little less than twice as wide as long, apex a little narrower than the base, sides feebly arcuate, margin very feebly explanate, surface sparsely and rather finely punctured. Elytra finely not densely punctured. Length .12—.20 inch; 3—5 mm.

The above characters sufficiently represent the typical form from which we have several variations.

var. **uniguttata** Mels.—This is the form in which the median portion of the sigmoid band alone remains.

var. **humeralis** Lec.—Here the sigmoid band disappears and the juxta-humeral spot alone remains.

var. **inornata**.—These are entirely immaculate and of a pale piceous color.

In the fully colored specimens the pubescence is not uniformly brown as in the preceding species but is intermixed with grey, and the elytral spots are covered with grey pubescence, and a vitta of similar color starts at the humerus and crosses the elytra in front of the tip. The pubescence is also coarser than in the two preceding.

The differences between this species and the preceding are so evident as to require no special mention. It will however be noticed that the tarsi are a little less dilated.

Occurs everywhere in the United States, including the Pacific Coast and also in Canada.

STELIDOTA Erichs.

Labrum bilobed. Mandibles feebly bidentate at apex, the terminal cusp simple not bifid. Antennæ with an abrupt club, grooves sub-ocular, moderately deep, parallel. Tarsi dilated.

The males have an additional segment which varies in distinctness in the species, being nearly as evident in *octomaculata* as in the males of *Epuraea*, while in the other two species the segment is quite as feebly developed as in *Phenolia*. *S. geminata* ♂ has in addition the middle and posterior tibiæ dilated in a manner similar to the posterior tibiæ of *Epuraea luteola*. (Pl. III, fig. 22).

Our species are distinguished as follows:

Thorax at apex deeply emarginate, base distinctly bisinuate, margin broad and deplanate.

Thorax arcuately narrowed from base to apex, broadest at base...**geminata.**

Thorax with sides more arcuate at base, so that the thorax is narrower at base than a little in front.....**octomaculata.**

Thorax at apex feebly emarginate, base truncate, margin narrow and not deplanate. Broadest at base.....**strigosa.**

S. geminata Say.—Oval, narrower posteriorly, piceous or rufo-piceous, margins paler, elytra maculate with paler spots. Head coarsely and moderately deeply punctured. Thorax twice as wide as long, narrower in front, apex deeply emarginate, base bisinuate, sides regularly arcuate from base to apex, margin broad, deplanate, hind angles rectangular, disc moderately convex, coarsely and densely punctured. Elytra as wide at base as the thorax, arcuately narrowed to apex, margin moderately reflexed, disc obsoletely subcostate, the costæ with a single row of fine punctures each bearing a short hair, the grooves between the costæ closely punctured with a catenulate appearance. Body beneath moderately densely punctured. Length .08—.10 inch; 2—2.5 mm.

Male.—Middle and posterior tibiæ distinctly arcuate, the former suddenly dilated in its distal half, the latter in the distal third. Sexual segment small.

Female.—Tibiæ simple, not arcuate.

Mr. Reitter has described a *S. biseriata*, a type of which was procured through the kindness of Dr. Dohrn, of Stettin. It does not differ specifically from *geminata*.

Occurs in the Middle and Southern Atlantic States.

S. octomaculata Say.—Oval, narrower posteriorly, piceous or rufo-piceous, elytra variably maculate with paler spots. Thorax twice as wide as long, narrower in front, apex deeply emarginate, base bisinuate, sides arcuate, slightly coarctate at base, hind angles rectangular, margin broad, moderately deplanate. Elytra as in *geminata*, surface not subcostate, but with the rows of fine hair-bearing punctures between which are rows of large, round, shallow punctures. Body beneath coarsely and densely punctured. Length .08—.10 inch; 2—2.5 mm.

The males have quite a distinct sexual segment. The tibiæ show no peculiarities, but occasional males are met with in which the tooth above the oblique emargination of the posterior tibiæ is a little more evident.

Occurs from the New England States to Florida.

S. strigosa Schönherr.—Oval, narrower posteriorly, piceous, elytra indistinctly maculate. Thorax nearly twice as wide as long, narrowed in front, sides arcuate, more strongly toward the front, apex feebly emarginate, base truncate, hind angles rectangular, margin very narrow not deplanate, disc moderately convex, punctures rather dense, coarse and substrigose. Elytra not subcostate, but with the series of small hair-bearing punctures and between them the usual row of coarse closely placed punctures. Body beneath densely punctured. Length .06—.08 inch; 1.5—2 mm.

This species is the smallest of the series, and is known by the form of the thorax and the narrow margin. The males have the usual sexual segment, and the posterior tibiæ at tip are a very little more dilated than in the female.

Occurs in South Carolina, Georgia and Florida.

PROMETOPIA Erichs.

Mentum large, entirely closing the mouth beneath. Labrum nearly semicircular. Mandibles prominent, bifid at tip. Antennal grooves moderately deep, slightly convergent. Antennæ slender, first joint stout, third very long, club elongate oval. Front not lobed at the sides. Thorax deeply emarginate in front, sides explanate. Prosternum flat, tip not prolonged. Tarsi very feebly dilated.

The males have an additional segment visible only beneath, received in a slight emargination of the fifth ventral and similar to that of *Colastus*.

One species only occurs in our fauna.

P. sexmaculata Say.—Broadly oval, depressed, piceous, margins paler. Head finely punctulate. Thorax twice as wide as long, narrower in front, apex deeply emarginate, base truncate, sides feebly arcuate, hind angles rectangular, margins explanate, disc feebly convex not densely punctate with coarse and fine punctures intermixed. Elytra as wide as long ♂, or longer than wide ♀; surface sparsely coarsely punctate, margins pale, disc piceous with an irregular humeral band and a spot at apical third paler. Body beneath paler than above, sparsely punctate. Length .20—.24 inch; 5—6 mm.

The males are always broader than the females, and have an additional segment as in *Colastus*.

Occurs from the Middle States to Missouri and Texas.

PHENOLIA Erichs.

Labrum feebly bilobed. Front not lobed over the insertion of the antennæ. Antennæ terminated by an abrupt club, first joint not auriculate, grooves moderately deep situated under the eye, not convergent. Mandibles bifid at tip, not dentate within. Tarsi not dilated.

The males have a small additional segment visible only beneath as in *Colastus*.

This genus has been united with *Soronia* by Mr. E. Reitter, but the differences as far as our species is concerned seems not to warrant this conclusion. The absence of the supra-antennal lobe of the front, together with the simpler form of the first joint of the antennæ, it being merely thickened, not auriculate, are sufficient in this family to retain *Phenolia* as distinct. The mandibles are, moreover, bifid at tip and not simple, resembling in this respect *Prometopia*.

P. grossa Fab.—Piceous, feebly shining, elongate oval, elytra maculate with paler spots. Head coarsely punctured, front transversely impressed. Thorax twice as wide as long, apex a little narrower than base, sides moderately arcuate, posteriorly distinctly sinuate, hind angles subacute, apex deeply emarginate, base feebly bisinuate, margin explanate, feebly reflexed, disc vaguely impressed each side of middle, surface coarsely and moderately densely punctate. Elytra as wide as the thorax, sutural angle slightly rounded, disc feebly subcostate, each ridge with a row of fine punctures bearing a short hair, intervals vaguely triseriately punctate, color piceous maculate with paler spots, one each side of scutellum, an oblique row of three spots, the outer humeral the inner at the middle of the suture, behind this row another similar one of three spots. Body beneath densely punctate, the abdomen less so than the metasternum. Length .24—.34 inch; 6—8.5 mm.

This is our largest Nitidulide with the exception of an Ips.

Occurs from Canada to Texas.

OMOSITA Erichs.

Labrum entire. Front not lobed at the sides. Antennal grooves moderately deep, feebly convergent beneath. Point of prosternum not prolonged. Tarsi moderately dilated.

There is no additional segment in the males.

Two species occur in our fauna, identical with those of Europe, but probably equally native to our continent and not introduced. They are so abundant and well known that no detailed description need be given.

O. colon Linn.—Piceous, elytra spotted with testaceous, a large apical testaceous space enclosing on each side a small piceous spot. Length .10—.14 inch; 2.5—3.5 mm.

Eastern United States and Europe.

O. discoidea Fab.—Somewhat more elongate than the preceding, similarly colored except that the large pale space is basal. Length .10—.16 inch; 2.5—4 mm.

Occurs in Europe and in the Pacific States, extending as far east as Colorado.

SORONIA Erichs.

Labrum emarginate or feebly bilobed. Mandibles with an acute cusp behind the tip, apex simple not bifid. Front distinctly lobed over the insertion of the antennæ. Antennæ terminated by the usual club, received in grooves under the eyes, either parallel or slightly convergent, first joint always auriculate but variably in extent. Tarsi extremely feebly dilated.

The males are as in *Phenolia*.

Under this head Mr. Reitter has united *Soronia*, *Lobiopa* and *Phenolia*. I fully agree with him as to the first two but not the last,

giving my reasons under that genus for the disagreement. I am, however, disposed to go a step further and suppress *Amphotis*, as there does not appear to be any valid reason for retaining it as distinct.

The antennal groove is beneath the eye which forms its upper limit, the lower or inner limit is formed by a ridge or plate which is nearly continuous with the edge of the mandible. This plate is more perfectly developed in the species heretofore referred to *Amphotis*, least so in *Soronia*, so that by the partial imperfection of this plate posteriorly the antennal grooves converge posteriorly, while they appear absolutely parallel in *Amphotis*. This difference affords a means of dividing our species quite naturally.

Antennal grooves very decidedly convergent posteriorly.
(Sides of thorax suddenly narrowed at base, the hind angles retracted within the humeral angles).....**grisea.**
Sides of thorax very feebly sinuate at base, the hind angles not retracted, the base as wide as the base of the elytra.....**guttulata.**
Antennal grooves parallel.
Elytra not or merely apparently costate.....**undulata.**
Elytra distinctly costate.
Thorax slightly coarctate at base, the explanate margin punctured; lateral angles of mentum prominent, acute.....**Ulkei.**
(Thorax broadest at base, hind angles rectangular, the explanate margin smooth; lateral angles of mentum rounded).....**marginata.**

Two European species are introduced into the table to show the relationship of our species with them. In *undulata* the antennal grooves are neither exactly parallel nor are they by any means convergent, the inner plate of which mention has been made is arcuate, so that if the insect is looked at directly from the front the grooves seem parallel, if from the rear they seem slightly convergent. *S. guttulata* by its narrower elytral margin approaches *Phenolia*; it has the widest distribution of all the species.

S. guttulata Lec.—Piceous or somewhat paler, feebly shining, very sparsely pubescent, elongate oval. Head moderately densely finely punctured and with a sinuous impression. Antennæ rufous, third joint nearly as long as the two following united, club piceous. Thorax twice as wide as long, broadest at base, apex deeply emarginate, base feebly bisinuate, sides regularly arcuate, posteriorly feebly sinuate, hind angles subacute slightly dentiform, margin broadly explanate, disc moderately convex, a distinct median impression and on each side about four vague foveæ, surface moderately densely finely punctured to the extreme margin. Elytra at base as broad as the thorax, humeral angles slightly dentiform, margin moderately explanate, slightly reflexed, surface less densely and more finely punctured than the thorax, sparsely clothed with brownish pubescence with short pale semierect setæ in rows, distantly placed; color piceous, margin paler, disc with a common sinuous band slightly

behind the middle, of pale testaceous color, a vague oblique band less pale than the preceding beginning at the humerus, and numerous small pale spots irregularly scattered. Body beneath moderately densely finely punctured, prosternum very sparsely punctured. Length .20 inch; 5 mm.

This species was placed by Crotch as a synonym of *S. grisea*, but it differs by its more elongate form and the shape of the thorax as indicated in the synoptic table. (Pl. III, figs. 8—9).

Occurs from Canada to Nevada, and is probably one of those northern transcontinental species whose habitat will be found from Maine to Oregon.

S. undulata Say.—Rather broadly oval, piceous, margins paler, elytra maculate, subopaque, sparsely pubescent. Head not densely punctulate, front semicircularly impressed. Thorax more than twice as wide as long at middle, narrower in front, apex deeply emarginate, base feebly bisinuate, sides moderately arcuate, near hind angles slightly narrowed, hind angles not prominent, surface moderately densely punctured at middle, sparsely at the sides, disc more vaguely impressed than in *guttulata*, piceous with paler spots. Elytra slightly wider than the base of the thorax, the humeral angles feebly dentiform, surface a little more coarsely punctured than the thorax, the punctures on the margin much finer and sparser; margins pale, disc piceous with a postmedian zigzag band and numerous paler spots. Body beneath finely and sparsely punctulate. Length .16—.20 inch; 4—5 mm.

As already remarked the antennal grooves are nearly parallel but the inner ridge slightly arcuate. The antennal club is less suddenly formed than in *guttulata*, the basal joint being triangular and not semicircular. The markings of this species are an almost exact reproduction of those of *S. grisea*, from which it differs in the form of the thorax, the present being slightly arcuately narrowed at base, the other suddenly obliquely narrowed.

Occurs from the Middle States to Utah.

S. Ulkei Lec.—Elongate oval, chestnut brown, opaque. Head densely punctured, front not impressed. Antennæ less elongate, third joint not as long as the two following united, club abrupt. Thorax twice as wide as the length at middle, narrowed in front, apex very deeply emarginate, base feebly bisinuate, sides moderately arcuate, hind angles rectangular, not dentiform, margin broadly explanate, not reflexed, disc not foveate, densely punctured, punctures at margin sparser. Elytra as wide at base as the thorax, humeral angles slightly dentiform, margin broad, moderately reflexed, disc moderately convex, with a sutural and fine feeble discal costæ which have fine punctures at their summits bearing short hairs, the intervals irregularly transversely coarsely punctured, margin more sparsely and less distinctly punctured. Body beneath densely punctured. Length .24—.28 inch; 6—7 mm.

In two of the specimens before me the color is uniformly brown, in the third the elytra are indistinctly maculate as in *Phenolia grossa*.

Massachusetts, Delaware, District of Columbia.

THALYCRA Erichs.

Labrum feebly visible, bilobed. Front at middle prolonged, the sides parallel, truncate in front. Antennæ with abrupt three-jointed club, no antennal grooves distinctly defined. Mandibles simple at tip, a small tooth behind the apex. Prosternum elevated, subconical and slightly prolonged at tip, not laminiform, mesosternum not carinate. Anterior tibiæ triangularly dilated, the outer apical angle dentiform, middle and posterior spinulose externally and at tip. Anterior tarsi dilated, the middle a little broadened, the posterior slender. Claws simple. Elytra entire.

The males have a very distinct additional dorsal segment.

This genus differs from all our genera of the present tribe (excepting *Perthalycra*), by the absence of antennal grooves, and from the latter by the form of the anterior tibiæ and the tarsi. The structure of the prosternum is radically different from that of *Meligethes* and the mesosternum is without carina.

One species only is known in our fauna.

T. concolor Lec.—Oblong oval, rufo-ferruginous, moderately shining, sparsely pubescent. Head and thorax moderately densely punctate. Thorax twice as wide as long, narrower in front, base arcuate, apex feebly emarginate, sides feebly arcuate, margin very narrow, finely fimbriate, hind angles obtusely rectangular, disc convex. Elytra as broad as the thorax, about one-fourth longer than wide, sides and apex arcuate, surface as coarsely punctured as the thorax but less densely, the punctures becoming rapidly finer and finally near the apex obsolete. Prosternum very sparsely finely punctate. Mesosternum and abdomen coarsely and moderately densely punctate. Length .14 inch; 3.5 mm.

I have seen but one male specimen, collected by Dr. Leconte, on the north shore of Lake Superior.

PERTHALYCRA n. g.

Labrum moderately prominent, bilobed. Epistoma at middle slightly prolonged. Mandibles acute at tip, a small tooth behind the tip. Mentum transverse, longest at middle. Last joint of maxillary palpi conical obtuse, labial ovate, slightly compressed and truncate. Antennæ rather short, club broadly oval, three-jointed, last joint small, retracted, grooves very feebly marked, strongly convergent. Prosternum convex between the coxæ, the tip obtusely prolonged. Anterior tibiæ triangular, the apical angle prolonged, the apical margin posteriorly dentate, outer edge bidentate at middle, middle and posterior tibiæ strongly spinulose. Tarsi slender, the anterior dilated in the male only. Claws simple.

The males have an additional segment and the anterior tarsi dilated.

This genus as will be seen, is closely allied to *Thalycra*, but differs in the anterior tibiæ dentate externally and the anterior tarsi dilated in the male only. The antennal club although three-jointed in both sexes is much more distinctly so in the male, the terminal joint in the other sex being strongly retracted.

One species is known.

P. Murrayi n. sp.—Oblong oval, castaneous or piceous, feebly shining, sparsely pubescent. Head and thorax moderately densely and coarsely punctured. Thorax less than twice as wide as long, slightly narrower in front, apex feebly emarginate, base very feebly arcuate, sides moderately arcuate, narrowly margined, finely fimbriate, hind angles obtuse. Elytra as wide as the thorax, and more than twice as long, one-third longer than wide, sides very feebly arcuate, apex feebly truncate, surface less densely punctured than the thorax. Body beneath sparsely punctate. Length .12—.16 inch, 3—4 mm. (Pl. III, fig. 25).

The anterior tibiæ have the outer apical angle prolonged and bidentate, the posterior edge of the apical margin with three or four stout spines; the outer edge has two acute teeth near the middle. The middle tibiæ are furnished with stout spines arranged in a double series, two near the tip longer, the tip is also spinulose. The posterior tibia is like the middle.

This insect occurs from San Francisco northward to Oregon and Western Nevada. There is also a specimen in Dr. Leconte's cabinet labelled Georgia.

POCADIUS Erichs.

Labrum moderately prominent, bilobed. Front prolonged at middle, feebly emarginate. Antennal club oval, three-jointed, grooves deep and slightly convergent. Prosternum convex between the coxæ, tip with conical protuberance, mesosternum not carinate. Tibiæ rather slender, the outer apical angle of all spiniform, the middle and posterior ciliate externally and with a few spinules. Tarsi slender on all the feet, the claws simple.

The males have a small additional segment.

The simple tarsi will distinguish this genus from any other with the protuberant prosternum.

Two species occur in our fauna.

Thorax narrowly margined. Ferruginous.....**helvolus.**
Thorax widely margined. Black, disc of elytra ferruginous.....**dorsalis.**

P. helvolus Erichs.—Broadly oval, robust, ferruginous, elytra sometimes darker at sides and apex, sparsely pubescent. Head coarsely irregularly punctured, front transversely impressed. Antennæ rufous. Thorax more than twice as wide as long, narrowed in front, apex emarginate, base arcuate, slightly sinuate each side, sides moderately arcuate, narrowly margined, disc

convex, coarsely irregularly punctured. Elytra as wide as the thorax, a little longer than wide, sides moderately arcuate, apex rotundate truncate, sutural angle slightly dentiform, disc convex with ten rows of vaguely impressed punctures, the intervals very slightly convex, irregularly biseriately punctulate, each puncture with a short fulvous hair. Body beneath coarsely sparsely punctured. Length .12—.16 inch; 3—4 mm.

Mr. Reitter has described two species from our territory which are known to us as mere color varieties of *helvolus*. *P. infuscatus* has each elytron slightly darker at its middle. *P. limbatus* has the elytra darker at the sides, *breviusculus* is a small form found in the Gulf States. Through the kindness of Dr. Dohrn, I have seen the types of these species and find the first merely a stained specimen, the second a slight color variety.

Occurs in Pennsylvania, Kansas and Georgia.

P. dorsalis n. sp.—Broadly oval, subdepressed, black, shining, very sparsely pubescent, elytra with a large basal space rufous. Head coarsely sparsely punctured, front triangularly impressed. Antennæ piceous. Thorax more than twice as wide as long, narrowed in front, apex feebly emarginate, base arcuate at middle vaguely sinuate each side, sides moderately arcuate, margin distinctly but narrowly explanate, hind angles rectangular, disc moderately convex, coarsely but sparsely punctured. Elytra very little longer than wide, sides feebly arcuate, apices separately rounded, sutural angle not dentiform, disc subdepressed, with ten rows of closely placed, but feebly impressed quadrate punctures, intervals flat with a single series of fine punctures. Body beneath black, shining, sparsely punctured. Length .16 inch; 4 mm.

This species is less convex than *helvolus* and slightly more elongate, its sculpture is more distinct and regular and the pubescence less marked. The discal rufous space of the elytra occupies the basal two-thirds but does not attain the margin.

Two specimens, California, sent me by Mr. Ulke.

ORTHOPEPLUS n. g.

Labrum bilobed, but feebly. Mandibles acute at tip. Mentum and palpi as in *Epuraea*. Antennæ with an abrupt club, grooves broad, badly defined, convergent. Prosternum at tip feebly conically protuberant. Mesosternum depressed not carinate, middle coxæ narrowly separated. Tibiæ feebly broader at tip. Tarsi of the middle and posterior legs simple, the anterior dilated. Elytra truncate at tip. Surface glabrous.

The males have a distinct sexual segment.

I cannot place the species on which the above genus is founded, in any of the genera at present established. The form is that of the more elongate *Epuraeæ* such as *truncatella*, parallel and moderately convex. The thorax is nearly square and the head above concave,

these give the species a peculiar appearance. The prosternum is elevated at tip and subconically protuberant, suggesting an affinity with *Thalycra* and *Pocadius*, with which there is otherwise very little resemblance. It may be called a glabrous *Epuraea* with protuberant prosternum with the anterior tarsi alone dilated.

O. quadricollis n. sp.—Elongate, parallel, piceo-rufous, elytra nearly black, moderately shining, glabrous. Head concave, minutely and sparsely punctulate, rufous. Antennæ rufous, club darker and longer than the funicle. Thorax quadrate, very slightly narrower posteriorly, apex feebly emarginate, sides feebly arcuate and narrowly margined, base slightly arcuate, disc feebly convex, anteriorly transversely flattened, rather finely punctulate, color rufous. Elytra parallel, very narrowly margined, apex obtusely truncate, disc with a feeble oblique impression from the humeri toward the suture, surface sparsely punctulate, punctures finer near the apex. Body beneath piceous, sparsely punctulate, abdomen more coarsely punctured and sparsely pubescent. Length .10 inch; 2.5 mm. (Pl. III, fig. 24).

The male has the small terminal abdominal segment.

One specimen, Colorado, (Morrison).

MELIGETHES Steph.

Labrum very feebly prominent. Antennæ with an abrupt three-jointed club, the grooves deep and nearly parallel. Point of prosternum free, overlapping the mesosternum. Elytra truncate at apex, pygidium exposed. Tarsi dilated, claws simple or dentate. Tibiæ serrate or finely denticulate. Last ventral segment with deeply impressed, semicircular line on each side, usually in great part concealed by the retraction of the segment.

There does not appear to be any additional segment in the male, nor any special sexual characters. The nearly concealed labrum, all the tarsi dilated, and the impressed line of the last ventral segment distinguish this genus from any other in our fauna. The species are extremely difficult to define, there appears to be a degree of variation in sculpture within specific limits which is very confusing.

The following table defines such as I have been able to separate satisfactorily.

Claws simple. Clypeus scarcely emarginate.
  Anterior tibiæ serrate, the middle emarginate externally.....**aeneus.**
  Anterior tibiæ finely denticulate, the middle simple.
    Thorax with the margin distinctly explanate.
      The explanate margin extending from base to apex.....**rufimanus.**
      The explanate margin not attaining the base.....**mutatus.**
    Thorax very narrowly margined, the margin not explanate..**seminulum.**
Claws toothed at base. Clypeus rather deeply emarginate.
  Anterior tibiæ coarsely serrate. Thoracic margin very narrow.....**pinguis.**

M. saevus Lec.—Oval, black, shining, very sparsely pubescent. Head moderately densely punctured. Antennæ piceous. Thorax a little less than twice as wide as long, narrowed in front, sides moderately arcuate, margin narrow, hind angles obtuse, disc convex, moderately densely punctate. Elytra a little longer than wide conjointly, surface a little more coarsely punctured than the thorax. Beneath black, not densely punctate. Anterior tibiæ serrate, middle tibiæ emarginate on the outer side near the tip and finely spinulose, posterior tibiæ dilated, finely spinulose. Length .08—.10 inch; 2—2.5 mm.

The claws are simple, the prosternum slightly broader behind the coxæ and rounded at tip. The front is extremely feebly emarginate, the angles distinct. Claws simple.

This species is one of the most easily known of any in our fauna. It is always black and never with any metallic lustre.

Occurs in Missouri and Kansas.

M. ruficornis Lec.—Oval, slightly oblong, black, thorax æneous, elytra blue, sparsely pubescent. Head æneous, moderately densely punctured. Antennæ piceous. Thorax twice as wide as long, narrower in front, sides moderately arcuate, margin from base to apex narrowly explanate, hind angles obtusely rectangular, disc convex, moderately densely punctured. Elytra one-fourth longer than wide, slightly narrowed to apex, surface rather finely and sparsely punctate and more shining than the thorax. Body beneath black, moderately densely punctured. Legs piceous or black, the tibiæ especially the anterior often paler. Anterior tibiæ finely denticulate; middle and posterior similar, finely spinulose. Length .08—.10 inch; 2—2.5 mm.

The prosternum is narrow, the tip subacutely rounded. Front nearly truncate. Claws simple.

This species and the next are extremely close and it may be a matter of doubt as to whether they should be retained as distinct. They seem to differ in the thoracic margin; here the margin is of equal width from apex to base and is quite distinctly deplanate even to the hind angles. The sides of the thorax seem also arcuate in front of the hind angles so that the base is a little narrowed. Finally the surface here is not alutaceous between the punctures. The color of the antennæ and legs has no value.

Mr. Reitter has sent me a specimen under the name *californicus*, which he considers a variety of the European *M. æneus* Fab., perfectly identical with the present species, and while I presume the determination to be correct our name is retained until further comparisons are made.

Occurs in California and Oregon.

M. mutatus Harold, (*ruficornis* ‖ Lec.)—This species resembles the preceding so closely that merely the slight differences will be detailed: Form slightly more robust, surface subopaque, the interspaces between the punctures distinctly alutaceous. Thoracic margin distinctly deplanate but not of equal

width and not attaining the hind angles. At about the posterior fourth of the margin the latter becomes broader, forming a vague depression behind which the margin is not distinctly deplanate. This depression or fovea varies in distinctness, but is never absent as in the preceding species. Length .08—.10 inch; 2—2.5 mm.

The specimens from Kansas and Colorado have usually entirely pale antennæ, although this is by no means constant, a piceous club is often seen on a paler stem. The punctuation of the surface is usually that described in the preceding species, but this is slightly variable also. Specimens from Michigan and New York, are less densely punctured and more shining but still showing more or less of the alutaceous surface. I have tried, but fruitlessly, to separate these forms specifically, but the differences between this and *rufimanus* are already so feeble as to prevent me from going any farther in this direction.

Occurs from New York to Colorado.

M. seminulum Lec.—Oval, slightly oblong, black, shining, sparsely pubescent. Head moderately densely punctured. Thorax twice as wide as long, narrower in front, sides posteriorly feebly, in front more broadly arcuate, hind angles obtusely rectangular, margin very narrow not deplanate, surface not densely punctured. Elytra one-fourth longer than wide, slightly narrowed to apex, surface rather sparsely punctured, shining. Body beneath moderately densely punctured. Anterior tibiæ finely denticulate, middle and posterior finely spinulose. Length .07 inch; 2 mm. nearly.

The epistoma is nearly squarely truncate as in *rufimanus* and the tarsal claws simple. It is known from all our species with simple claws and denticulate tibiæ by the very narrow thoracic margin.

With this species I unite that bearing the name *obsoletus* in Dr. Leconte's cabinet. It appears less shining than the other but this may result from the better preservation of the pubescence. The two are represented by unique specimens.

Oregon and North shore of Lake Superior.

M. pinguis n. sp.—Broadly oval, robust, piceous, feebly shining, sparsely pubescent, surface moderately densely punctate, the elytra more densely than the thorax. The latter nearly twice as wide as long, narrower in front, sides arcuate, more broadly anteriorly, hind angles obtuse, margin narrow not deplanate, disc convex. Elytra as broad as long, convex. Body beneath coarsely punctate, piceous, legs paler. Anterior tibiæ coarsely serrate, middle and posterior tibiæ finely denticulate. Tarsal claws distinctly toothed at base. Prosternum slightly broader behind the coxæ, rounded at tip. Epistoma rather deeply emarginate, the lateral angles acute. Length .10 inch; 2.5 mm.

This species has so many peculiarities that any comparison with the other species is entirely unnecessary. Its broad form is very striking at first sight, the length and breadth are to each other as 10 to 7.

One specimen from the Southern coast of Newfoundland, given to Dr. Leconte by Mr. L. Reiche of Paris, belonging to Mr. Reitter's subgenus *Acanthogethes* and apparently most closely allied to *M. brevis* St., of Europe.

CYCHRAMINI.

Maxillæ with one lobe. Labrum distinct. Thorax margined at base covering the base of the elytra. Elytra covering the abdomen in great part, the pygidium is part only exposed. Prosternum more or less prolonged at apex. Tarsi distinctly five-jointed.

The genera here placed contain species of broadly oval convex form, either pubescent or glabrous. The tribe as constituted here is the same as that of Erichson and Lacordaire, excepting that *Cybocephalus* has been removed in accordance with the views of Duval, (Gen. Col. Eur.), and *Psilopyga* added.

The genera are distinguished in the following manner:

Mesosternum protuberant in front, the middle coxæ widely separated.
Prosternum prolonged, dilated laminiform at tip, covering entirely the mesosternum. Body glabrous, elytra striato-punctate..... **Psilopyga.**
Prosternum less prolonged, feebly dilated at tip, not covering entirely the mesosternum. Body pubescent, elytra irregularly punctate. **Amphicrossus.**

Mesosternum small, oblique, not protuberant.
Metasternum protuberant, widely separating the middle coxæ. Prosternum not prolonged at tip, not laminiform, vertical behind the anterior coxæ. Body glabrous..... **Cyllodes.**
Metasternum not protuberant, middle coxæ narrowly separated.
Hind tarsi longer than the others. Body glabrous..... **Pallodes.**
Tarsi equal in length. Body pubescent..... **Cychramus.**

PSILOPYGA Lec.

Labrum prominent, deeply bilobed. Front prolonged at middle truncate. Antennæ with an oval, abrupt, three-jointed club, grooves deep subocular, parallel. Mentum transverse, sides short, apex arcuate. Last joint of maxillary palpi cylindrical, rounded at tip, the labial oval. Prosternum prolonged behind the coxæ, the tip broader and explanate covering the mesosternum which is carinate. Thorax margined at base, covering the base of the elytra, the middle with a short but broad, squarely truncate lobe. Scutellum large, broadly triangular. Elytra truncate. Tibiæ with outer apical angle dentiform; anterior tarsi dilated, the middle feebly, the posterior simple. Tarsal claws simple.

The males have a small additional segment.

I have removed this genus from the preceding tribe and place it

here from the margined base of the thorax. It seems to me more closely allied to *Pallodes* than any other in our fauna, the large scutellum and the form of the basal margin of the thorax indicating this alliance very plainly.

P. histrina Lec.—Broadly oval, robust, black, shining, glabrous. Head coarsely punctured. Thorax more than twice as wide as long, narrowed in front, apex emarginate, base arcuate with a short broad lobe at middle and slightly sinuate each side, sides regularly arcuate following the curve of the elytra, margin narrow, disc convex not densely punctured, punctures of moderate size with a group of larger punctures forming an arcuate series near the apex. Scutellum moderately densely punctured. Elytra as broad as long, sides regularly arcuate, apex rotundate-truncate, surface with ten rows of moderately coarse punctures, intervals slightly convex, irregularly sparsely punctulate. Body beneath sparsely coarsely punctate. Length .20 inch; 5 mm. (Pl. III, fig. 14).

The resemblance of this insect to a *Histeride* is so complete that it is always placed among them by inexperienced observers.

The anterior tibiæ are simple except the apical prolongation, but when viewed by transmitted light they appear to be finely crenulate. The tarsi are more dilated in the male than in the female, but in both sexes the posterior tarsi are slender.

Occurs in Pennsylvania, Georgia and Missouri, but rare.

P. nigripennis Lec.—Bright rufous, elytra above black. Agrees with the preceding in form and sculpture except as follows: Thorax more sparsely and less coarsely punctured, punctures similar without the arcuate group of coarser punctures. Striæ of elytra less deep, punctures smaller, intervals scarcely convex. Body beneath more sparsely punctate. Length .18 inch; 4.5 mm.

The outer apical angles of the tibiæ are prolonged into longer processes than in *histrina*. (Pl. III, fig. 14, a, b, c.)

I feel very uncertain regarding the status of this species, as I believe that more specimens will show that it is merely a variety of *histrina*, yet as the subject now presents itself they certainly cannot be united.

One specimen, Pennsylvania.

AMPHICROSSUS Erichs.

Labrum bilobed. Mandibles bidentate at tip. Antennal grooves slightly convergent, subocular. Prosternum prolonged at tip, slightly laminiform, anteriorly more or less carinate. Mesosternum prominent. Tibiæ simple. Anterior tarsi distinctly dilated, middle feebly, the posterior nearly simple. Claws not toothed.

The males have an additional segment, visible only beneath, and on the elytra near the middle of the suture a small brush of stiff erect hairs resembling a spine.

Two species occur in our fauna.

Piceous, more or less maculate. Prosternum obtusely carinate. Males with brush of hairs on elytra.....**ciliatus.**

Black. Prosternum acutely carinate. Males without brush of hairs on the elytra.....**niger.**

A. ciliatus Erichs.—Broadly oval, piceous, subopaque, pubescent, elytra maculate, legs yellowish. Head closely punctate. Thorax more than twice as wide as long, narrowed in front, apex deeply emarginate, base truncate, sides feebly arcuate, hind angles broadly rounded, surface moderately closely punctate, margins paler, fimbriate, disc with pale spot in front of scutellum. Elytra as long as wide a little narrowed to apex, surface more finely punctured than the thorax and less densely, color piceous with three pale spots on each at base, sometimes a fourth near the apex. Body beneath piceous, opaque, sparsely punctate. Prosternum obtusely carinate. Legs yellowish. Length .14—.22 inch; 3.5—4.5 mm.

Occurs in Missouri, Georgia and Florida.

A. niger n. sp.—Oval, black above, ferruginous beneath, sparsely pubescent, feebly shining. Prosternum acutely carinate. Males without elytral brush of hairs. Length .18 inch; 4.5 mm.

The above characters separate this species from the preceding. The form is less broad, the surface more shining, rather less punctured and pubescent. Above the species is uniformly black, never maculate.

Occurs in Arizona, under the loose outer bark of the Mesquit.

CYLLODES Erichs.

Labrum short, emarginate. Mandibles simple. Mentum broad, bisinuate in front, more prominent at middle. Terminal joint of both palpi cylindrical not dilated. Antennæ with three-jointed, abrupt club, the grooves short, convergent. Prosternum behind the coxæ vertical not prolonged at tip, not laminiform. Mesosternum carinate, usually concealed by the meeting of the pro- and metasternum, the latter prominent in front. Thorax with a short lobe at middle of base. Scutellum large, broader than long. Elytra rotundato-truncate, pygidium partly exposed. Anterior tarsi moderately, middle feebly dilated, posterior simple. Claws simple. Outer apical angle of tibiæ acute but not spiniform.

The males have an extremely small additional segment, which might easily escape observation.

C. biplagiatus Lec.—Broadly oval, black, shining, glabrous, each elytron with an oval red spot near the base. Head and thorax moderately closely punctate. Thorax more than twice as wide as long, narrowed in front, apex emarginate, base arcuate with a short broad, scutellar lobe, sides moderately

arcuate, hind angles rectangular. Scutellum large, moderately densely punctate. Elytra as wide as long, disc with seven rows of moderately coarse punctures, the intervals irregularly punctate. Body beneath sparsely punctate. Legs black, tarsi paler. Length .16—.18 inch; 4—4.5 mm.

This insect at first sight resembles a *Hyperaspis*. The elytra should have ten rows of punctures, but the first and the outer two are entirely obsolete and replaced by the confused punctures.

Occurs in Massachusetts.

PALLODES Erichs.

Mandibles bifid at tip. Prosternum slightly prolonged not dilated at tip. Mesosternum not carinate, middle coxæ not widely separated. Anterior and middle tarsi dilated, posterior slender as long as the tibiæ. Outer apical angle of tibiæ obtusely rounded.

The males have an extremely short additional segment.

The characters other than those given above are the same as in the preceding genus.

One species is known to me.

P. silaceus Erichs.—Oval, convex, pale piceo-testaceous, glabrous, shining, elytra iridescent. Head sparsely punctate. Thorax very sparsely and finely punctate, more than twice as wide as long, much narrowed in front, apex emarginate, base feebly arcuate, at middle a very short, truncate scutellar lobe, sides arcuate, hind angles rectangular. Scutellum large, sparsely punctate. Elytra longer than wide, narrower toward apex, slightly broader behind the humeri, disc with nine rows of moderate punctures the sutural deeply impressed, intervals with a single series of very fine punctures. Body beneath smooth. Length .12—.16 inch; 3—4 mm.

The elytra are sometimes darker externally near the tip. The tibial spurs on the anterior two pairs of feet are very small, those on the posterior very long.

Occurs in the Middle and Southern Atlantic region.

CYCHRAMUS Kug.

Labrum feebly emarginate. Mandibles simple at tip. Antennal grooves short, convergent. Prosternum vertical behind the coxæ the tip not prolonged. Mesosternum vertical, not carinate, the middle coxæ not very widely separated. Thorax not lobed at middle of base. Scutellum not large. Tarsi all dilated.

The males have a small additional segment.

This genus is allied to *Amphicrossus* in form and pubescent surface, but differs in the bilobed labrum, the form of mesosternum and the tarsi. In the present genus the mesosternum is narrow and oblique, the metasternum flexed upwards at tip between the coxæ and not protuberant.

Two species occur in our fauna.

Tibiæ not prolonged at tip, the middle not sinuate externally.....**adustus.**
Tibiæ especially the anterior with the outer apical angle prolonged, the middle moderately deeply sinuate before the apex.....**Zimmermanni.**

C. adustus Erichs.—Broadly oval, convex, opaque, pubescent, ferruginous elytra variable from entirely ferruginous to entirely black. Head sparsely punctured, front sinuously transversely impressed. Thorax twice as wide as long, narrower in front, apex deeply emarginate, base truncate, hind angles obtusely rectangular or rounded, sides arcuate, margin narrow with fine fimbriæ, surface rather coarsely and closely punctate. Elytra as broad as long, slightly narrower posteriorly, margin finely fimbriate, apex obtusely truncate, disc with fine elongate punctures arranged in quite regular series. Body beneath sparsely punctate. Length .12—.16 inch; 3—4 mm. (Pl. III, fig. 18, d, e, f.)

The tibiæ are all gradually broader to apex, the outer apical angle not prolonged. The variation in color of the elytra is from ferruginous to black by the sides becoming piceous, this color extends so that merely a sutural triangle is ferruginous, finally the entire color of the elytra is black, forming the variety *bicolor* of the Check List.

Occurs in Virginia, Georgia and Missouri, not common.

C. Zimmermanni n. sp.—Oval, convex, subopaque, pubescent, elytra piceous. Head sparsely granular, front transversely impressed. Thorax twice as wide as long, narrower in front, apex deeply emarginate, base truncate, sides arcuate, hind angles obtusely rounded, surface moderately closely punctured, punctures submuricate, margin finely fimbriate. Elytra as wide as long, arcuately narrowed to tip, convex, disc faintly substriate, intervals finely submuricately punctured. Body beneath moderately closely punctate, the prosternum smooth. Length .18 inch; 4.5 mm. (Pl. III, fig. 18, a, b, c.)

Anterior tibiæ feebly sinuate on the outer side the apical angle prolonged into a long acute tooth, middle tibiæ sinuate externally the apical angle moderately prolonged, posterior tibiæ feebly sinuate the apical angle more prolonged than the middle but much less than in the anterior.

This species of which I have seen but one specimen resembles the variety *bicolor* of the preceding species. It is a little less broad and differs in sculpture also. The variation in the form of the tibiæ does not seem to me to be of generic value, as similar characters are already foreshadowed in *Meligethes* and *Psilopyga*.

One specimen, South Carolina, collected by the late Dr. Chas. Zimmermann.

CYBOCEPHALINI.

Maxillæ with one lobe. Tarsi four-jointed. Body retractile, mandibles in repose resting against the metasternum. Thorax margined at base, covering the base of the elytra.

The views of Duval in separating this genus from the *Cychramini*, seem to me correct and worthy of adoption.

CYBOCEPHALUS Erichs.

Labrum entire. Mandibles acute at tip, a small tooth posteriorly. Epistoma slightly prolonged at middle. Antennæ scarcely longer than the width of the head, the antennal grooves small and convergent. Prosternum acutely carinate in front, not prolonged behind the anterior coxæ which are very narrowly closed behind. Mesosternum broad, oblique, metasternum slightly protuberant. Thorax margined at base, sides very short. Scutellum rather large. Tibiæ simple, tarsi slightly dilated, four-jointed, claws simple.

The males have a rather large additional segment.

The head is broad and deflexed, the mandibles resting against the metasternum. The body is, in contraction, ovate and very convex.

After a careful examination of the tarsi I am convinced that Duval is correct and that there are but four joints, and that the claws are simple.

The resemblance of the species of this genus to *Liodes* is so very great, that it might be considered quite pardonable to confuse them without a careful examination of the anterior coxæ and antennæ. The front of *Liodes* is truncate or broadly rounded, in *Cybocephalus* prolonged at middle.

Two species occur in our fauna.

Surface black shining, thoracic margin with extremely narrow translucent border, not at all explanate.....**nigritulus.**

Surface with distinct æneous lustre, thoracic margin translucent and distinctly explanate.....**californicus.**

C. nigritulus Lec.—Ovate, contractile, convex, black, very shining. Legs piceous. Head and thorax smooth, but under very high power very finely alutaceous, sides of thorax with extreme margin narrowly translucent not explanate. Elytra with extremely minute punctures very sparsely placed in the basal region, sides and apex absolutely smooth but under high power finely alutaceous. Body beneath coarsely punctate. Length .04 inch; 1 mm. (Pl. III, fig. 15.)

When the specimens are stretched out they are about one-half nearly longer.

Occurs in Michigan and Georgia.

C. californicus n. sp.—Black, surface æneous and under high power distinctly alutaceous. Thorax with lateral margin slightly explanate and translucent. Elytra under moderate power distinctly but very sparsely punctulate, smooth at sides and base. Length .03 inch; .75 mm.

The length extended is about one-half greater. From the preceding species this is known by the sides of thorax quite distinctly explanate and more broadly translucent than in *nigritulus*. The punctuation

of the elytra is also more evident and the surface quite distinctly æneous.

San Diego and Calaveras (Crotch), Owens' Valley, California.

Cybocephalus? unicolor Motsch., Bull. Mosc. 1845, iv, p. 364, does not belong to the genus.

IPINI.

Maxillæ with one lobe. Labrum connate with the front, suture more or less distinct. Antennæ eleven-jointed, terminated by a three-jointed club. Anterior coxæ open behind, narrowly enclosed in *Pityophagus*.

By the one character this tribe is distinguished from all the Nitidulidæ. By all authors from Erichson, the labrum is said to be concealed by the front, that this is not the true condition is very easily seen and proved by dissection.

The genera composing the tribe are as follows:

Anterior coxæ open behind.
  Thorax margined at base, slightly overlapping the base of the elytra. Body pubescent..... **Cryptarcha.**
  Thorax not margined at base. Body glabrous..... **Ips.**
Anterior coxæ closed behind.
  Thorax not margined at base. Body glabrous..... **Pityophagus.**

In the above arrangement *Cryptarcha* leads naturally to the *Cychramini*, and *Pityophagus* to the Rhizophagidæ. *Cryptarcha* is restricted to the Atlantic region, the other two genera have representatives on both sides of the continent.

CRYPTARCHA Shuck.

Labrum indistinct. Mandibles feebly bifid at tip. Antennal grooves short, convergent. Prosternum prolonged and laminiform at tip, partly concealing the mesosternum, anterior coxæ open behind. Thorax margined at base. Scutellum not large. Tibiæ simple, tarsi dilated, claws simple. (Pl. III, fig. 12, *a*, *b*, *c*.)

The males have the tips of the elytra obliquely sinuate as in some *Ips*, there is no additional segment. The head is larger in the male than in the female.

Three species occur in our fauna.

Elytra substriately punctured, surface simply pubescent.
  Sides of thorax not explanate, of elytra very narrowly reflexed..... **ampla.**
Elytra irregularly, moderately densely punctured, surface pubescent and with rows of short erect setæ.
  Sides of thorax not explanate, of elytra very narrowly reflexed... **strigata.**
  Sides of thorax explanate, of elytra rather widely reflexed..... **concinna.**

C. ampla Erichs.—Oval, more obtuse in front, piceous, sparsely pubescent. Thorax feebly emarginate in front, sides feebly arcuate and but little narrowed anteriorly, margin narrowly reflexed but not explanate, hind angles obtuse, surface moderately closely punctate. Elytra gradually narrowing posteriorly, margin feebly reflexed, apices separately rounded, more oblique in the male, surface substriately punctate, sparsely pubescent, without erect setæ. Length .24—.28 inch; 6—7 mm.

The male has the head larger than the female and the thorax broader in front, the elytral apex oblique.

This species differs from the next two by its much larger size, uniformly piceous color.

Occurs in the Middle, Southern and Western States, not rare.

C. strigata Fab.—Oval, broader in front, piceous, moderately shining, sparsely pubescent, and with short erect setæ. Thorax nearly twice as wide as long, sides gradually arcuate and narrowed to the front, hind angles rectangular, margin not explanate, narrowly reflexed, color piceous, margin paler, surface not densely punctate, sparsely pubescent and with a few erect setæ. Elytra very little longer than wide, sides feebly arcuate and gradually narrowed to apex, margin very narrowly reflexed, color piceous and with two transverse sinuous fasciæ more or less interrupted and a scutellar spot pale testaceous, surface sparsely pubescent and with seven series of short erect setæ the outer rather irregular. Body beneath piceous, sparsely punctulate. Length .10—.14 inch; 2.5—3.5 mm.

Occurs in Europe and our Atlantic States.

C. concinna Mels.—This species is more regularly oval, less narrowed posteriorly; the color is similar to *strigata*, differs also in having the sides of the thorax moderately explanate and the elytral margin wider and more reflexed. The sinuous fasciæ of the elytra are usually entire, sometimes interrupted by the suture. Length .08—.12 inch; 2—3 mm.

In both these species the elytra are obliquely prolonged in the male, obtuse in the female.

With this species I unite *C. bella* Reitter, which does not differ from the Melsheimer species, *concinna* ‡ Reitter, seems to be a mere color variety of *strigata*.

Middle States, Kansas, Texas.

IPS Fab.

Labrum connate with the epistoma, suture more or less evident. Front slightly prolonged. Mandibles stout, bifid at tip. Prosternum prolonged at tip, never attaining the metasternum, anterior coxæ open behind. Antennæ with an abrupt club, grooves moderately deep, convergent. Tarsi dilated or not, claws simple.

There is an additional segment in the male, but often so much retracted as to be invisible.

Here is a proper occasion to call attention to the labrum. All

authors speak of that organ as *concealed* by the epistoma. This is not the case, the labrum is not concealed but is very evident beyond the epistoma and is connate therewith, the suture quite evident in all the species, more especially in *obtusus*. (Pl. III, fig. 23).

The following tables give the arrangement of the species:

Hind tarsi nearly as broadly dilated as the anterior; thorax broader at base than apex.....Sub-Genus **IPS.**
Hind tarsi slender; thorax narrower at base.....Sub-Genus **GLISCHROCHILUS.**

Sub-Genus IPS.

Middle and hind tibiæ ♂ suddenly broader at apical half.
Black, each elytron with two large red spots.....**obtusus.**
Middle and hind tibiæ not different in the sexes.
Body beneath black.....**fasciatus.**
Metasternum and abdomen red.....**sanguinolentus.**

Sub-Genus GLISCHROCHILUS.

Sides of thorax distinctly sinuate posteriorly.
Elytra coarsely punctured, with large discal reddish space enclosing black spots.....**confluentus.**
Elytra more finely punctured, black, with short, linear testaceous lines. **vittatus.**
Sides of thorax gradually convergent posteriorly, straight not sinuate.
Elytra black, with a subhumeral red spot and a median interrupted fascia. **cylindricus.**

I. obtusus Say.—Piceous black, elytra each with two red spots, one at the middle of base, the other slightly behind the middle. Length .36—.48 inch; 9—12 mm.

The males have the middle and posterior tibiæ suddenly broader at apical half. A small additional segment is also visible, the pygidium truncate at tip and not concave. (Pl. III, fig. 23, *a*, *b*.)

The females have simple tibiæ, pygidium oval at apex and slightly concave near the end.

In both sexes the elytra agree in the form of the apices of the elytra, they are very slightly oblique in both sexes.

Occurs in the Middle and Southern Atlantic States.

I. fasciatus Oliv.—Black, shining, elytra normally with a broad basal and a subapical fascia yellow. Length .16—.28 inch; 4—7 mm.

The males have the small additional segment and the tips of the elytra oblique, slightly prolonged.

The females have rounded elytral tips. The tibiæ are not different in the two sexes.

The markings on the elytra vary from the fasciate form by the gradual decrease of the size of the spots, so that there finally remain two punctiform spots on each elytron, one basal, the other post-median.

Occurs everywhere in the eastern United States, extending to Oregon and Vancouver.

I. sanguinolentus Oliv.—Piceous black, abdomen red, elytra in great part red, the tip, small humeral and larger discal spot black. Length .18—.24 inch; 4.5—6 mm.

The sexual characters are precisely as in *fasciatus*.

The elytra vary in color by the extension of the discal black spot so that very little red remains, this is the variety *subromaculatus* Reitter.

Occurs from Canada to Florida and Texas.

I. confluentus Say.—Piceous, elongate, coarsely punctured, sides of thorax sinuate posteriorly. Elytra reddish testaceous, tip black, an oblique humeral band, broader at tip, suture at base narrowly piceous, a small spot on each side of scutellum piceous. Length .18—.20 inch; 4.5—5 mm.

Sexual characters as in *fasciatus*.

The markings of this species seem to be merely a modification of that of *sanguinolentus*, in which the discal spot extends obliquely to the humeri and the small spot on each side of scutellum is added.

Occurs from Canada to Georgia.

I. vittatus Say.—Resembles the preceding in form, but more finely punctured and less convex. Elytra with short linear testaceous spots. Length .16—.20 inch; 4—5 mm.

Sexual characters as in *fasciatus*, but with the apices of the elytra ♂ a little more prolonged.

This species has been thought to be a variety of the preceding, but it is more elongate and depressed and with finer punctuation.

Occurs in Canada, Colorado, Utah, and extends to California, Oregon and Alaska.

I. cylindricus Lec.—Elongate, moderately convex, piceous, sparsely punctate, elytra with subhumeral spot and post-median interrupted fascia red. Sides of thorax convergent posteriorly, straight. Length .26—.30 inch; 6.5—7.5 mm.

Sexual characters as in *fasciatus*.

Occurs in California, Oregon and Nevada.

PITYOPHAGUS Shuck.

Labrum connate with the front, suture feebly distinct. Mandibles bifid at tip. Front slightly prolonged. Prosternum not prolonged at tip, anterior coxæ closed behind. Antennæ with an abrupt three-jointed club, grooves convergent. Tarsi dilated, claws simple. Tibiæ finely spinous externally. (Pl. III, fig. 27).

The males have an additional segment scarcely more visible than in *Ips*. The elytra are squarely truncate in both sexes.

The species known to me are as follows:

Head convex without vertical fovea or occipital groove.....**cephalotes.**
Head convex with fine longitudinal occipital groove.....**rufipennis.**
Head convex with deep vertical fovea.....**verticalis.**

P. cephalotes is piceous with a paler thorax, *rufipennis* has paler elytra, *verticalis* is more depressed than either and uniformly piceous, the first is from the eastern region, the second from the Pacific coast, the third from Colorado.

P. cephalotes Lec.—Elongate, subcylindrical, rufo-piceous, elytra darker. Head convex without impressions, rather coarsely but sparsely punctured. Thorax scarcely wider than the head, a little longer than wide, sides straight, base feebly arcuate, coarsely but sparsely punctured, a vague smooth median line, punctures somewhat elongate. Elytra very little wider than the thorax, humeral angles dentiform, coarsely and moderately densely punctured, punctures finer at sides and tip. Body beneath sparsely punctate. Length .20 inch; 5 mm.

One ♀ specimen, Pennsylvania.

P. rufipennis Horn.—Piceous black, elytra brownish red. Head with a fine longitudinal occipital groove. Thorax sparsely punctured, punctures not elongate, sides very slightly arcuate posteriorly. Elytra less coarsely punctured than the preceding. Length .24—.28 inch; 6—7 mm.

Quite distinct from the preceding species, but equally convex and otherwise colored and sculptured.

Occurs in Oregon and Vancouver.

P. verticalis n. sp.—Elongate, depressed, subcylindrical, piceous, legs paler. Head coarsely and moderately densely punctured, a deep vertical fovea. Thorax not longer than wide, narrowed posteriorly, sides nearly straight, feebly arcuate posteriorly, surface with elongate punctures sparsely placed. Elytra not densely punctured, punctures coarser near the base and slightly elongate. Body beneath sparsely punctate. Length .26 inch; 6.5 mm.

The tibiæ of the specimen before me are devoid of the usual small spinules, but this is probably owing to abrasion.

One ♂ Colorado, (Morrison).

SMICRIPINI.

Labrum moderately prominent. Maxillæ one lobed. Mentum transverse concealing the maxillæ. Antennæ eleven-jointed with a three-jointed club. Tarsi three jointed. Anterior coxæ open behind.

With these words an aberrant tribe is characterized which exhibits affinities with the great central mass of Nitidulidæ, and in another direction less strongly with the Monotomidæ. A discussion of the question occurs farther on.

There is but one genus at present known.

SMICRIPS Lec.

Labrum moderately prominent, transverse, truncate. Frontal suture arcuate, deeply impressed. Mentum transverse, twice as wide as long, slightly narrowed in front, apex emarginate, at middle slightly depressed. Ligula prominent, palpi short, last joint not dilated. Maxillæ entirely concealed by the mentum, with one lobe only which is fimbriate at tip and along the inner margin; palpi not longer than the lobe, the first joint slender, second and third suddenly stouter, fourth conical, as long as the two preceding united. Mandibles broadly triangular, slightly bifid at tip, slightly sinuate on the inner border, at base clasping the sides of the mentum. Eyes round, moderately prominent. Head not constricted behind. Antennæ free at base, eleven-jointed, first joint stout, cylindrical, second similar but shorter, 3—8 small, nearly equal, 9—11 rather suddenly broader, forming an elongate club; grooves subocular, short, feeble, slightly convergent. Anterior coxæ transverse, trochantin distinct, the cavities open behind, tip of prosternum not elevated nor prolonged. Mesosternum horizontal. Middle coxæ moderately distant, obliquely oval, their cavities open externally, closed by the mesosternal epimera. Posterior coxæ oval widely separated, the intercoxal process arcuate at tip. Abdomen with five segments, first and fifth equal in length and equal to the three intermediate segments united, these latter are short and equal. Tibiæ slender, spurs minute. Tarsi moderately dilated three-jointed, first two joints short, equal, last joint more than twice as long as the other two united. Claws arcuate, simple. Elytra truncate, pygidium exposed.

The male has a very distinct additional segment.

It is not without diffidence that I claim for this insect a place among the Nitidulidæ, and in order that this position may be made more evident I have given the very extended generic description above. The parts of the mouth have been described from actual dissections, a matter of no small difficulty in an insect so minute, but thanks to the kind practical instruction of the Rev. A. Matthews of England, whose dissections of Trichopterygidæ are still the wonder of the scientific world, I have been enabled to overcome the difficulties involved.

I cannot see that this insect has any claim to be considered a Monotomide, beyond the three-jointed tarsi and the impression of the frontal suture which is not however characteristic of that family. The characters which especially forbid its entrance there are—transverse anterior and middle coxæ, maxillæ with a single lobe, antennæ

eleven-jointed with a three-jointed, not compact club. The relative length of the abdominal segments is that of the Monotomidæ, but a similar structure is very closely approximated in Nitidulidæ. The anterior coxæ are here open behind but widely closed in all known Monotomidæ, although this character varies in the Nitidulidæ. In view of the divergences and affinities above shown the weight seems to me more in favor of the Nitidulidæ than the Monotomidæ.

One species only is known.

S. palmicola Lec.—Elongate, rufo-testaceous, sparsely pubescent, minutely punctulate above and beneath but more evidently on the thorax. Thorax a little wider than long, slightly narrowed in front, apex truncate, base feebly arcuate, sides straight. Elytra a little wider than the thorax, a little longer than the head and thorax together, sides very feebly arcuate, apices truncate. Pygidium moderately coarsely punctate. Length .04 inch; 1 mm.; varying a little more and less. (Pl. III, fig. 1, with details.)

The elytra have often a darker cloud at tip and base.

The last ventral segment ♂ is truncate, and the additional dorsal segment visible.

Occurs in Florida, on the Palmetto.

RHIZOPHAGINI.

Labrum visible at the tip of the epistoma but connate with it. Mandibles simple at tip. Maxillæ with two lobes, the outer slender not capitate. Antennæ ten-jointed, club of two joints, the tenth partly enclosed; antennal grooves short, convergent. Prosternum not prolonged at tip. Anterior coxal cavities closed behind. Mesosternum horizontal. Intercoxal process triangular, acute. Abdomen with the first and fifth segments long, the intermediate three short, equal. Elytra truncate, pygidium exposed. Tarsi feebly dilated, heteromerous in the males, pentamerous in the females. Claws simple.

The males in addition to the tarsal character have an additional segment and the head usually larger.

The ten-jointed antennæ distinguish this tribe from the others. In the aggregate of their organization there is an approach toward the Trogositidæ from which the structure of the tarsi alone distinguishes them. In the present tribe the first tarsal joint is as long or a little longer than the second, while in the Trogositidæ the first joint is small. By its bilobed maxillæ *Rhizophagus* approaches the Brachypterini on the one hand and Trogositidæ on the other; the large additional segment of the male and the structure of the abdomen with the first and last joints short are Carpophilide, while the form of the head and connate labrum are Ipide. The tribe seems therefore

to be osculant with Trogositide tendencies, in the same way that Smicripini have feeble Monotomide affinities.

Mr. Reitter has described a genus IXION, in which the tarsi are said to be 4—4—3 in the male.

One genus only is known in our fauna. The species are as follows:

Thorax longer than wide.....1.
Thorax as wide or wider than long.....4.
1.—Elytra with distinctly impressed striæ which attain the tip and punctured their entire length.....**scalpturatus** Mann.
Elytra with rows of punctures merely.....2.
2.—Thorax in ♂ very decidedly narrowed from apex to base, sides nearly straight; thorax beneath nearly smooth.....**cylindricus** Lec.
Thorax in ♂ scarcely or not narrowed posteriorly, sides in both sexes feebly arcuate; thorax beneath punctured.....3.
3.—Elytra wider than thorax; color piceous, rufous at base.
dimidiatus Mann.
Elytra wider than thorax; color uniformly brown.....**brunneus** Horn.
Elytra not wider; color pitchy black, each with two rufous spots.
bipunctatus (Say).
4.—Prosternum and side pieces coarsely and moderately densely punctured; epipleuræ distinctly punctured at base.....**approximatus** Lec.
Prosternum and side pieces sparsely punctured; epipleuræ smooth.
Elytra pitchy black.....**remotus** Lec.
Elytra each with two oblique rufous spots on each.....**minutus** Mann.

R. scalpturatus Mann.—Piceous or rufo-piceous, moderately depressed. Head moderately but not densely punctate, front with a feeble impression on each side. Third joint of antennæ slightly longer than the two following. Thorax longer than wide, sides feebly arcuate and gradually narrowed to base; disc at middle subdepressed, surface coarsely but not densely punctured at middle, finely punctured at the sides. Elytra not wider than the apex of the thorax, disc subdepressed, sides feebly arcuate at apical half; surface distinctly striate, striæ entire but feebler at apex and with moderately coarse punctures closely placed but not serrate, intervals flat. Prosternum very sparsely punctured at middle, sides and side pieces coarsely and densely punctured. Metasternum and abdomen coarsely but sparsely punctured. Pygidium coarsely punctured. Length .14 inch; 3.5 mm.

The color of this species is variable, four specimens in my cabinet are decidedly ferruginous, others are piceous, while one exhibits distinct evidences of having the elytra piceous with a humeral and subapical paler spot. One specimen in my cabinet from New York, differs in having the elytra still more deeply striate. I am unwilling to separate it as distinct on the one specimen.

Occurs in Vancouver, Nevada and New York.

R. cylindricus Lec.—Elongate, cylindrical, rufo-piceous. Head sparsely and finely punctured, more coarsely at sides and occiput. Third joint of antennæ nearly as long as the three following united. Thorax longer than wide, sides straight and gradually convergent ♂ or very feebly arcuate ♀;

disc convex, sparsely and finely punctured. Elytra cylindrical, parallel, convex, sutural striæ impressed at apical half, surface with rows of moderate punctures which become obsolete near the tip. Prothorax beneath smooth, metathorax and abdomen sparsely and finely punctured, last ventral more evidently punctured. Pygidium sparsely punctate. Length .18 inch; 4.5 mm.

This is the largest species in our fauna. In the male the head is larger than in the female and rather broader than the thorax, in both the front is convex without impressions and the mandibles of the male are rather more prominent than the female.

Occurs in Tennessee and Georgia.

R. dimidiatus Mann.—Elongate, subcylindrical, piceous, base of elytra, head and legs rufous. Head sparsely punctulate, front slightly impressed on each side. Antennæ with third joint hardly equal to the next two united. Thorax longer than wide, rather sparsely and finely punctate, sides very feebly arcuate in both sexes, narrowed slightly to base in male. Elytra slightly wider than the thorax, subcylindrical, sides at apical half slightly narrowing to apex, sutural striæ at apical half slightly impressed, disc with rows of fine punctures becoming rapidly obsolete to apex. Prosternum at middle sparsely punctured, sides and side pieces coarsely punctured. Abdomen sparsely and equally punctate. Pygidium moderately punctate. Length .14—.16 inch; 3.5—4 mm.

As in the preceding species the male has the head larger than the female but not much so. Its color varies somewhat in the extent of the rufous portion of the elytra but greater or less traces always remain of that color.

Occurs from Alaska to Lake Superior, and Mount Washington, New Hampshire, (Blanchard).

R. brunneus Horn.—Uniformly brownish, moderately shining. Head sparsely punctate. Thorax a little longer than wide, apex and base truncate, sides subparallel at middle, slightly arcuate at base and apex, disc convex, coarsely and sparsely punctured. Elytra slightly wider at base than the thorax and feebly emarginate, disc with rows of moderately coarse punctures which become somewhat finer toward the tip. Prosternum coarsely punctured, side pieces nearly smooth. Metasternum smooth at middle. Abdomen coarsely and sparsely punctured, the first segment smooth at middle. Pygidium sparsely punctate. Length .12 inch; 3 mm.

Marquette, Lake Superior. The punctures of the entire surface are coarser than in any other of our species. It must be considered the intermediate form between those with the long and those with the broad thorax.

R. bipunctatus Say.—Elongate, cylindrical, black shining, antennæ and legs rufous, elytra each with two rufous spots, one oblique behind the base, the other smaller, oval at apical third. Head sparsely punctate. Antennæ with third joint hardly as long as the next two combined. Thorax longer than wide, sides very feebly arcuate, not perceptibly narrowed posteriorly, disc convex sparsely punctulate. Elytra not wider than thorax, cylindrical, parallel, sutural stria impressed at apical half, surface with rows of moderate

punctures, rather closely placed, becoming finer at apex but still distinct. Epipleuræ distinctly punctured at base. Prosternum sparsely punctured at middle, densely and more coarsely at the sides, side pieces sparsely punctured. Abdomen coarsely but sparsely punctured. Pygidium coarsely and moderately densely punctured. Length .10—.12 inch; 2.5—3 mm.

The sexes scarcely differ in the form of the head and thorax.

Specimens occur in which the rufous spots of the elytra are not apparent, and varieties may also occur (although I have not seen such), in which the spots spread so as to leave merely the margin and apex piceous.

This species occurs most abundantly in Canada and the States bordering the great lakes.

R. approximatus Lec.—Piceous, subdepressed, antennæ and legs rufous. Head moderately punctured, rather more coarsely at sides and base, frontal impressions moderate. Third joint of antennæ equal to the next two together. Thorax distinctly wider than long, sides moderately arcuate, hind angles broadly rounded, surface with moderately coarse punctures not densely placed but equally distributed. Elytra subdepressed, not wider than the thorax, sides slightly arcuate at basal half, surface feebly striate, striæ with moderately coarse punctures rather closely placed, becoming somewhat finer toward the apex. Prosternum rather coarsely and moderately densely punctured, side pieces more coarsely punctured. Epipleuræ distinctly punctured at base. Abdomen coarsely punctured. Pygidium moderately densely punctate. Length .12 inch; 3 mm.

I have seen but one ♀ specimen of this species. It closely resembles the next, but is easily known by the sculpture of the under surface and the more closely punctured striæ.

One specimen from New York.

R. remotus Lec.—Piceous, moderately convex, antennæ and legs rufous. Head coarsely but sparsely punctured, more finely in front. Antennæ with third joint as long as the two following. Thorax slightly wider than long, sides feebly arcuate, hind angles broadly rounded, surface moderately and equally punctate. Elytra nearly parallel, moderately convex, surface with striæ of moderately coarse punctures rather closely placed, gradually finer to tip. Thorax beneath sparsely and rather finely punctured. Epipleuræ smooth. Abdomen with first segment rather finely and sparsely punctured, segments two to five more coarsely. Pygidium moderately punctate. Length .10 inch; 2.5 mm.

Occurs in Pennsylvania and Canada.

R. minutus Mann.—Form subdepressed, piceous, shining, legs and antennæ rufous, elytra each with two rufous spots which at times become suffused and cover the entire disc. Head sparsely punctate obsoletely alutaceous. Antennæ with third joint as long as the next two together. Thorax slightly wider than long, sides feebly arcuate and very slightly narrowed posteriorly, disc moderately and evenly punctate, intervals obsoletely alutaceous. Elytra not wider than the thorax, parallel, with rows of moderate punctures which are rather closely placed, becoming finer toward the tip. Epipleuræ smooth at base.

Prosternum very sparsely punctate, side pieces nearly smooth. Abdomen with first segment sparsely punctate, segments two to five more coarsely and densely punctured. Pygidium moderately punctate. Length .10 inch; 2.5 mm.

The elytra are normally colored as described above, that is, there is an oblique rufous spot on each elytron behind the base and another at apical third. These spots gradually spread so that the entire disc is rufous, and only the side margin and tip piceous. The latter form is that described by Mannerheim.

Specimens have been sent from Oregon, (Ulke), Michigan, (Schwarz, 1599), Canada and Alaska, (Mann.).

The following species is unknown to me. The name is already preoccupied and it would be as well to drop it entirely from the lists.

Rh. punctiicollis ‖ Boh. Res. Eugen. 1858, p. 39.—Elongatus, subdepressus, rufo-ferrugineus, nitidus; prothorace oblongo, sat crebre, evidenter punctulato, lateribus rectis, antice posteceque angustatis; elytris sat crebre punctato-striatis, interstitus lævibus. Long. 2.75—3; lat. .75 mm.

Patria: California, San Francisco.

The detailed description adds nothing of moment to the above short diagnosis. It may not be a Rhizophagus and all of Boheman's localities are uncertain, and as the name is preoccupied it would be better to drop it entirely.

In a short paper in the *Verhandlungen des naturforschenden Vereins in Brünn*, vol. xi, 1872, Mr. Reitter describes as *Rhizophagus*:

R. corpulentus (Motsch.), Reitter = Hesperobænus abbreviatus *Motsch.*

R. striolatus Reitter = Bactridium striolatum.

R. nanus Erichs. = Bactridium ephippigerum *Guér.*

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I. fasciatus Oliv. Ent. ii, 12, p. 7, pl. 2, fig. 13; Say, loc. cit. p. 169.
quadrisignatus Say, loc. cit. p. 169.
bipustulatus Mels. Proc. Acad. ii, p. 108.
sexpustulatus Reitter, Verh. Naturf. Ver. Brünn, xii, p. 161.
I. sanguinolentus Oliv. loc. cit. p. 8, pl. 2, fig. 14; Say, loc. cit. p. 169.
rubromaculatus Reitter, loc. cit. p. 161.
I. confluentus Say, Journ. Acad. iii, p. 195.
I. vittatus Say, Bost. Journ. i, p. 170.
Dejeani Kby. Fauna Bor. Am. iv, p. 107, pl. 2, fig. 4.
sepulchralis Rand. Bost. Journ. ii, p. 19.
I. cylindricus Lec. New Species, 1863, p. 64.

PITYOPHAGUS Shuck.
Illust. Brit. Col. p. 25.

P. cephalotes Lec. Proc. Acad. 1860, p. 377.
P. rufipennis Horn, Trans. Am. Ent. Soc. 1872, p. 146.
P. verticalis n. sp.

RHIZOPHAGINI.

RHIZOPHAGUS Hbst.
Die Kæfer, v, p. 18.

Rh. scalpturatus Mann. Bull. Mosc. 1852, ii, p. 362.
Rh. cylindricus Lec. Proc. Acad. 1866, p. 377.
Rh. dimidiatus Mann. Bull. Mosc. 1843, p. 300.
Rh. brunneus Horn, Proc. Am. Philos. Soc. 1878, p. 308.
Rh. bipunctatus Say, (*Colydium*), Journ. Acad. iii, p. 324; Lec. Proc. Acad. 1866, p. 377.
Rh. approximatus Lec. loc. cit. p. 378.
Rh. remotus Lec. loc. cit. p. 378.
Rh. minutus Mann. Bull. Mosc. 1853, iii, p. 206.

Notes on the MYCTERIDÆ and other Heteromera.

BY GEORGE H. HORN, M. D.

A number of specimens of MYCTERUS having been lately added to my cabinet, some collected by Morrison in western Nevada, and several others from C. F. Gissler from New Mexico, there is now sufficient material to give the species some definite characters. The following table will enable them to be separated in a preliminary way.

Thorax broader at base, as wide as the base of the elytra.
Legs in great part and antennæ yellow.
Posterior legs piceous.....**canescens** n. sp.
All the legs yellow.....**scaber** Hald.
Legs, antennæ and clypeus piceous.....**concolor** Lec.
Thorax not broader at base, narrower than the base of elytra.
Legs, antennæ and mouth yellow.....**quadricollis** Horn.

The above color characters although trivial are constant and answer

well for both sexes. The sexual characters are worthy of special mention, these furnish the true basis of specific separation. The new species is briefly as follows:

M. canescens n. sp.—Black, clothed with fine short grey pubescence, antennæ, clypeus and legs (except the posterior), yellow. Head and thorax densely and finely punctured, opaque; thorax as broad at base as the elytra, a fine basal impression in front of scutellum, another deeper each side. Elytra coarsely and moderately densely punctured, punctures finer toward the apex. Body beneath moderately densely and finely punctured and with grey pubescence. Length .12—.26 inch; 3—6.5 mm.

Male.—Smaller than the ♀. Antennæ subserrate, the joints always as long as broad. Intercoxal process of abdomen with a moderately elevated tubercle, the surface of which is nearly smooth.

Female.—Larger than ♂. Antennæ slender. No intercoxal tubercle.

This species is that mentioned by me as the ♂ of *concolor*, (Trans. Am. Ent. Soc. 1868, p. 137), having at that time but two females of *concolor* and two males of the present, there did not seem to be sufficient reason for separating them. Superficially the species greatly resembles *scaber*, but may be known by the sexual characters and the dark hind legs.

Occurs from the Sierras of western Nevada, southward to Keyesville, California.

M. scaber Hald., Proc. Acad. 1843, p. 308.

Male.—Antennæ with third joint broadly triangular, 4—10 transverse, but gradually less so to tip. Intercoxal process with a moderately prominent umbone with pubescent summit.

Female.—Third joint of antennæ elongate, joints 4—10 subserrate.

Occurs in the Atlantic States.

M. concolor Lec., Proc. Acad. 1853, p. 235.

var. flavipennis Horn, Trans. Am. Ent. Soc. 1868, p. 136.

Male.—Antennæ slender, third joint elongate, joints four and six shorter respectively than five and seven. Intercoxal process with a large flattened umbone, extending the length of the segment, finely transversely strigose like a stridulating plate.

Female.—Antennæ as in the ♂ but the joints 4—10 are gradually shorter, eleventh elongate as usual.

I refer to *concolor* a number of specimens collected by Morrison in Nevada, although they are somewhat more densely punctured and opaque. *M. flavipennis* Horn, under this determination is a synonym, the yellow elytra counting for nothing. I have several females with yellow elytra but the males and about half the females are piceous.

Occurs in Colorado, New Mexico and western Nevada.

M. quadricollis Horn, Trans. Am. Ent. Soc. 1874, p. 42.

Male.—Third joint of antennæ elongate, joints 4—10 as broad as long, trapezoidal. Segments 1—4 with a small patch of brownish pubescence at middle near posterior border. Last ventral segment longer than the preceding, broader

also than usual, and with a slight emargination. Elytra obliquely subtruncate at tip.

Female.—Antennæ feebly subserrate. Elytra rounded at tip.

The specimens collected by Crotch had yellow elytra. I have two from New Mexico, entirely piceous above. This species is known by the narrower thorax, vaguely impressed above.

Occurs in California, (Temescal), and New Mexico.

The last named species bears the same relation to the others that the species of *Magdalis* do among themselves, those *Mycterus* with the thorax broadest at base resembling *Magd. Lecontei*, while *quadricollis* represents *Magd. barbita*. Closely allied to *Mycterus* but differing by several important characters is

LACCONOTUS Lec.

Here the head is not elongated and the palpi shorter although of similar structure. The elytral epipleuræ do not reach the tip. First segment of abdomen shorter than the second. Tibiæ without terminal spurs.

Two species are known.

Black, thorax reddish-yellow with median black space.....**punctatus** Lec.
Piceous, elytra less coarsely punctured than the thorax.....**pinicola** n. sp.

L. punctatus Lec., Class. Col. N. A. p. 255.—Moderately elongate, black, sparsely pubescent, thorax red with discal black space. Head densely punctured, black. Thorax quadrate, sides feebly arcuate in front, surface coarsely punctured, disc slightly impressed each side of middle. Elytra coarsely and densely punctured. Body beneath (and legs) black, sparsely punctate. Length .17—.22 inch; 4.25—5.5 mm.

Male.—Second abdominal segment notably longer than the third and at middle more convex, smooth and testaceous, recalling the tubercle of *Myc. canescens* but larger.

It is interesting to find a similarity of sexual characters between this and three of the *Mycterus*, although the tubercle is on the second instead of the first segment.

Canada, Michigan, Pennsylvania, very rare.

L. pinicola n. sp.—Piceous or black, elongate, moderately shining, sparsely pubescent. Head densely punctured, antennæ and mouth rufous. Thorax quadrate, sides feebly arcuate in front, disc densely punctured and with a very vague oblique impression each side. Elytra broader than the thorax, nearly five times as long, slightly broader behind the middle, moderately densely and more finely punctured than the thorax. Body beneath moderately densely and finely punctured. Length .22—.26 inch; 5.5—6.5 mm.

Male.—Second ventral segment with a small oval elevated space covered with short brownish pubescence.

This species differs from the preceding in the form of the antennæ, here they are a little longer than the head and thorax, the joints rather slender and longer than wide. In *punctatus* the antennæ

equal the head and thorax, the joints flattened, as broad as long and subserrate.

Four specimens, Colorado and western Nevada, (Morrison).

The Mycteridæ seem to have been cast about from place to place by the various students who have had occasion to write about them. Schmidt and Lacordaire have placed them in the Oedemeridæ with which the latter author acknowledges they have many important differences. Following them the German authors adopt the same opinion, while Latreille associated *Salpingus* and *Rhinosimus* with *Mycterus* as a separate family. The doubts expressed by Lacordaire together with the evidence given by Dr. Leconte, (Class. p. 254), are sufficient to show the impropriety of associating *Mycterus* with the Oedemeridæ. A study of the characters seems to narrow the affinities of the Mycteridæ to a close relationship with the Melandryidæ and Pythidæ, and in that position we find them placed by Dr. Leconte as a separate family. From the former family it differs simply in the middle coxæ being enclosed by the sterna without trochantin, the lobed penultimate joint of the tarsi existing in various degrees in several genera while the toothed claws are found in *Nothus*. The lobed tarsi and toothed claws are not found in the Pythidæ although the coxal character is. Therefore the affinity seems more strong in the direction of the Melandryidæ. Giving additional weight to this is a character of small importance, the slight impression of the base of thorax on each side of the middle which also exists in all Melandryidæ even *Nothus* and *Stenotrachelus*. To my mind *Mycterus* and *Lacconotus* bear the same relationship to the Melandryidæ that *Rhinosimus* and *Salpingus* do to the Pythidæ. It seems to me to be still an open question as to whether the Pythidæ and Melandryidæ should remain separated.

Here seems a proper place to notice the occurrence of a new species of

NOTHUS Oliv.

N. luteus n. sp.—Moderately elongate, yellowish testaceous, sparsely pubescent. Head densely punctured. Thorax a little wider than long, sides feebly arcuate, margin posteriorly feebly explanate and slightly reflexed, base squarely truncate, disc moderately convex, densely and rather coarsely punctured. Elytra a little wider than the thorax, parallel, as densely punctured as the thorax but a little more coarsely. Body beneath moderately densely punctured. Length .32 inch; 8 mm.

The specimen before me is a male, at least it has the trifid claws and the elongated last ventral segment, but the posterior tibiæ have no spine.

Its color, punctuation and size will distinguish it from *varians*.

Occurs in southeastern California.

EXPLANATION OF PLATE III.

Fig. 1.—*Smicrips palmicola* Lec.; *a*, underside; *b*, mentum and mouth beneath; *c*, maxilla; *d*, mandible; *e*, antenna; *f*, tarsus.

Fig. 2.—Claw of *Brachypterus*.

Fig. 3.—Claw of *Amartus*.

Fig. 4.—Maxilla of *Amartus tinctus* Mann., (after Murray).

Fig. 5.—*Anthonœus agavensis* (Crotch).

Fig. 6.—Thorax and pygidium ♂ and ♀ of *Cercus pennatus* Murr.

Fig. 7.—Last ventral ♂ *Colastus maculatus* Er.; *a*, sexual segment protruded.

Fig. 8.—Thorax of *Soronia grisea* Linn.

Fig. 9.—Same of *S. guttulata* Lec.

Fig. 10.—Thorax of *Conotelus obscurus* Erichs.

Fig. 11.—Same of *C. stenoides* Murr.

Fig. 12.—Thorax beneath of *Cryptarcha ampla* Erichs.; *a*, maxilla; *b*, mentum and ligula.

Fig. 13.—Head beneath of *Prometopia sexmaculata* Say.

Fig. 14.—*Psilopyga histrina* Lec.; *a*, *b*, *c*, tibiæ of *P nigripennis* Lec.

Fig. 15.—*Cybocephalus nigritulus* Lec., nerved laterally; *a*, outline above.

Fig. 16.—Elytral markings of *Ips confluentus* Say.

Fig. 17.—Same of *I. vittatus* Say.

Fig. 18.—*a*, *b*, *c*, tibiæ of *Cychramus Zimmermanni* Horn; *d*, *e*, *f*, same of *C. adustus* Er.

Fig. 19.—Middle tibia ♂ *Epuraea rufida* Mels.; *b*, same of *E. monogama* Crotch, with tarsus.

Fig. 20.—Posterior tibia ♂ *Epuraea luteola* Erichs.

Fig. 21.—Posterior tibia ♂ *Carpophilus antiquus* Mels.

Fig. 22.—Middle and posterior tibia ♂ *Stelidota geminata* Say.

Fig. 23.—Head, showing epistoma and labrum of *Ips obtusus* Say; *a*, middle and posterior tibia ♂; *b*, same of ♀.

Fig. 24.—*Orthopeplus quadricollis* Horn.

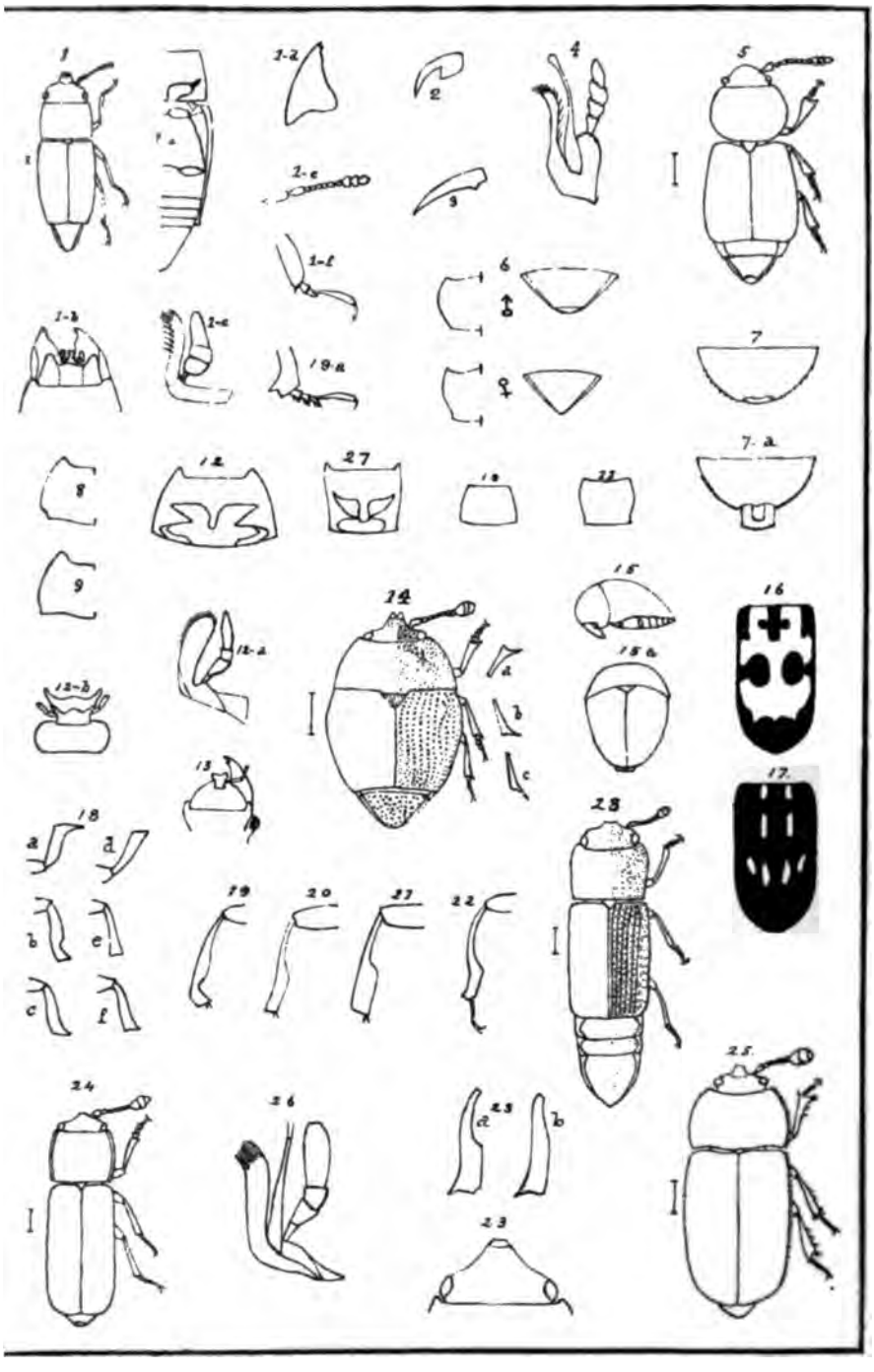
Fig. 25.—*Perthalycra Murrayi* Horn.

Fig. 26.—Maxilla of *Rhizophagus* (after Murray).

Fig. 27.—Thorax beneath *Pityophagus rufipennis* Horn.

Fig. 28.—*Brachypeplus glaber* Lec.

The sketches above have been drawn from nature from dissections made by myself, except 4 and 26 which are from Murray whose details are reliable. G. H. H.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SEPTEMBER 12, 1879.

Director Dr. LECONTE in the chair.

The Publication Committee reported favorably the following papers for publication in the Transactions of the American Entomological Society:—

"Descriptions of new species of North American Hymenoptera," by E. T. Cresson.

"Catalogue of North American Tenthredinidæ and Uroceridæ," by E. T. Cresson.

Dr. Horn gave the members the result of a study of the Eucnemidæ with especial reference to *Cerophytum* and *Perothops*, which are considered aberrant members of that family, the latter being excluded entirely by Bonvouloir. An examination of the labrum in both genera shows it to be prominent, transverse, entirely corneous and connate with the front in a manner very much like the Cebrionidæ. These genera should be excluded from the Eucnemidæ each to represent a sub-type of the greater Elateride complex including with the families above mentioned the Throscidæ and Elateridæ proper.

Dr. Horn gave in brief a review of the Dascyllidæ, a synopsis of which was presented for publication. He stated that the arrangement of the tribes and genera did not differ from that already proposed by Dr. Leconte, which was the best yet given, except in some details of secondary importance. After passing in review the several tribes and genera, special attention was directed to certain hitherto unnoticed characters in the genera allied to *Eubria*, of which three occur in our fauna, *Dicranopselaphus*, *Ectopria* and *Aeneus* n. g.

In *Ectopria* (Eurea), a dissimilarity is found in the tarsal claws in the two sexes. In the male both claws are bifid at tip for nearly a third of their length, at the base of the claw is a large tooth rectangular in front. In the female the tooth exists but the tip of the claw is entire.

Dicranopselaphus has similar claws in the male, the female remaining unknown. Our species of this genus has not the two spiniform appendages at the end of the palpi, but the last joint is simple as in *Ectopria*. This character ceases to have generic value and *Dicranopselaphus* must be separated from *Ectopria* by the slightly dilated tarsi with the joints 2—3—4 somewhat emarginate and the fourth also slightly lobed.

Aeneus is founded on a female only and the characters are rather negative. The claws are simple at tip and there is merely a feeble

triangular dilatation near the base of the claw. The third joint of the antennæ is also elongated.

Eubria does not occur in our fauna, but all European authors agree in its having simple claws. This is not true. The anterior claw on each pair of legs is bifid at tip while the posterior is simple. The female was not seen.

Dicranopselaphus Edwardsii Lec., forms a new genus, differing remarkably from all *Dascyllidæ* in having the claws furnished with a long membranous appendage arising from the base, and a distinct onychium. The genus was called *Placonycha*.

Mr. McCook exhibited an artificial formicary containing living specimens of the Honey Ant, *Myrmecocystus mexicanus* Wesmael. They were brought from the Garden of the Gods in Colorado, where they were first discovered by him. They had not been observed heretofore north of New Mexico. A specimen of the exterior architecture, and portions of the interior were also shown. The nests are gravel covered moundlets in shape of a truncated cone, about three inches high, six to ten inches in diameter at the base, and about two in diameter at the top. The centre is pierced perpendicularly by a tubular gallery about one inch wide and three to six inches deep. From the end of this other galleries branch out, in one direction chiefly. One nest opened was followed seven feet, ten inches, through the red sandstone at a depth of two to three feet beneath the surface. Honey chambers of various sizes, some six inches long by three wide, and three and one-fourth inches high were found, in each of which about thirty honey-bearers hung. They clung to the roof by their feet, the globular abdomen, filled with amber honey, drooping down. The ants are nocturnal in habits, and collected honey from galls upon the scrub oak (*Quercus radiata*). They left the nest in column about 7.30 P.M. after sundown, and returned from 11.30 P.M. to 3.30 A.M., laden with the sweet exudations from the galls, which quite distended their abdomens. Mr. McCook succeeded in making quite complete studies of the habits and architecture of these interesting insects, which have until now been entirely unknown His field studies, it is hoped, will be supplemented by important observations upon the living specimens which he brought with him in large numbers.

He also made extended observations of the habits and architecture of *Pogonomymex occidentalis* Cresson. This large red ant makes the conical mounds (usually gravel covered), which form one of the most

familiar objects upon the far western plains. They prove to be harvesting ants, quantities of seeds being found in their granaries. They closely resemble in structure and habits their congener *P. barbatus*, the Agricultural Ant of Texas. There are however, some interesting variations of habit.

Mr. E. T. Cresson exhibited specimens of five new species belonging to the hymenopterous genus *Eucerceris*, and described them as follows:

Eucerceris fulviceps.—♀.—Head unusually large, widened beneath, closely punctured, fulvo-ferruginous, sides of face, prominence between antennæ, and clypeus pale yellow; clypeus broad, very short, produced medially into a subacute tooth, black at tip; apical half of mandibles black; antennæ black, four basal joints fulvous; thorax black, closely punctured, tegulæ, scutellum and disk of metathorax fulvous; posterior margin of prothorax, dot on sides of scutellum, line on postscutellum, an oblong mark on sides of metathorax and a slender oblique line on each side of basal enclosed space, yellow; the latter transversely or slightly obliquely striated; wings fuscous, darker on apical costal margin, stigma and costal nervure fulvous; legs entirely fulvous; abdomen closely punctured, coarsely so on apical margin of the segments, a broad pale yellow band on segments 1—4 above, that on the first narrower and subinterrupted, apical segment blackish at tip; venter immaculate. Length .60 inch.

Hab.—New Mexico.

Eucerceris rubripes.—♁.—Black, coarsely punctured, shining; broad stripe on sides of face narrowed above, stripe between antennæ reaching the lower ocellus, and the clypeus, lemon-yellow; mandibles except tips, large spot on cheeks behind summit of eyes, and seven basal joints of antennæ, fulvous; posterior margin of prothorax, tubercles, spot behind, subinterrupted line at base of scutellum, line on postscutellum, and spot on tegulæ, white; an indistinct ferruginous line on sides of metathorax; scutellum with a few large scattered punctures, basal enclosed space of metathorax with ill-defined transverse striæ; wings subhyaline, the apical costal margin rather broadly violaceous black, before stigma it is narrower and yellowish; stigma and costal nervure fulvous; legs fulvous, spot on anterior femora beneath and line on the four anterior tibiæ before, yellow; abdomen sparsely punctured, segments 2—5 with a transverse median impressed line, a broad yellow band on segments one and two, a narrow yellow band at apex of segments 3—6 suddenly dilated on sides; apical segment and bands on venter fulvous, several yellow spots on segments three and four beneath. Length .50 inch.

Hab.—Colorado. H. K. Morrison.

Eucerceris elegans.—♁.—Face nearly to summit of eyes and clypeus cream-white; cheeks and mandibles except tips, fulvous; vertex, line above insertion of each antenna, and tips of mandibles, black; antennæ black, five or six basal joints fulvous; head large, rather closely punctured; thorax black, pro- and mesothorax and scutellum sparsely and coarsely punctured, shining; posterior margin of prothorax, four spots on anterior margin of mesothorax, the two middle ones smaller and oblique, broad band at base of scutellum, line

on postscutellum, tubercles, spot behind, and most of tegulæ, all white; large oblong mark on sides of metathorax, dot beneath wings and the pectus fulvous; basal enclosed space of metathorax obliquely striated, deeply channeled centrally; legs entirely fulvous; wings hyaline, with the costal margin broadly yellow, shading into black at tip, costal nervure fulvous; abdomen coarsely and sparsely punctured, shining, segments 2—5 with a transverse median impressed line, segments 1—4 above with a broad white band, five and six with narrow apical bands, terminal segment and bands on venter ferruginous. Length .45 inch.

Hab.—Nevada. H. K. Morrison.

Eucerceris similis.—♀.—Black, shining, sparsely and finely punctured; head large, widened towards the mouth; sides of face, line between antennæ, clypeus, spot at base of mandibles, broad sinuous line on cheeks, posterior margin of prothorax, line at base of scutellum, sometimes interrupted into spots, line on postscutellum, ovate spot on sides of metathorax, two ovate spots in basal enclosed space, two spots on pleura, dot on tegulæ, spot on coxæ, tips of four anterior femora, posterior pair except base and apex, most of the tibiæ, band at apex of abdominal segments 1—5 dilated laterally, and band on ventral segments 2—4, all yellow; clypeus flattened, toothed at apex; the three or four basal joints of flagellum ferruginous; metathorax finely punctured, finely striated on the sides, basal enclosed space smooth, channeled centrally; wings subhyaline, costal margin rather broadly fuscous; tarsi ferruginous. Length .40 inch.

♂.—The face and pectus entirely and most of the legs are yellow; otherwise the markings are much as in the ♀.

Hab.—Nevada. H. K. Morrison.

Eucerceris vittatifrons.—♂.—Black, shining; three stripes on the face, continued on the clypeus, the central one narrowed above clypeus and reaching the lower ocellus, spot behind summit of eyes, stripe on mandibles, posterior margin of prothorax, line or two spots at base of scutellum, line on postscutellum, line or spot on sides of metathorax, tubercles, spot behind, spot on tegulæ, line on four anterior tibiæ, narrow band on apical margin of abdominal segments 1—6 more or less dilated laterally, and band or spots on ventral segments 2—4, all yellowish-white; vertex closely punctured, face sparsely so, as is also the mesothorax; basal enclosed space of metathorax smooth or with subobsolete striæ; wings hyaline, the costal margin beyond stigma pale fuliginous; the knees and apex of posterior femora ferruginous; abdomen sparsely and coarsely punctured. Length .40 inch.

Hab.—Nevada. H. K. Morrison.

The following additions to the Library of the American Entomological Society were announced:—

Transactions of the American Entomological Society, vol. vii, No. 3. From the Publication Committee.

Proceedings of the Boston Society of Natural History, vol. xx, pp. 129—176. From the Society.

Bulletin of the Essex Institute, vol. xi, Nos. 1—3. From the Institute.

Canadian Entomologist, vol. xi, Nos. 5—7. From the Editor.

Le Naturaliste Canadien, vol. xi, Nos. 126—128. From the Editor.

Entomologist's Monthly Magazine, Nos. 181—184. From the Conductors.

Bulletin of the Brooklyn Entomological Society, vol. ii, No. 1. From the Society.

North American Entomologist, vol. i, Nos. 1 and 3. From the Editors.

Bulletin of the Minnesota Academy of Natural Sciences, 1877. From the Academy.

Catalogue of Scientific Serials, 1633—1876, by S. H. Scudder. By purchase.

Psyche, vol. ii, No. 64. From the Editors.

Cistula Entomologica, August 1879. By purchase.

Deutsche Entomologische Zeitschrift, 1879, Erstes Heft. From the Entomological Society of Berlin.

Jahreshefte des Vereins für vaterländische Naturkunde in Württemberg, 1879. From the Society.

Tijdschrift voor Entomologie, 1878, Nos. 3 and 4. From the Netherland Entomological Society.

Compte-Rendu Société Entomologique de Belgique, Série ii, Nos. 65—67. From the Society.

Indberetning om en i Sommeren 1876 foretagen lepidopterologisk Reise af J. Sparre Schneider. From the Author.

Verhandlungen des Vereins für naturwissenschaftliche Unterhaltung zu Hamburg 1876. From the Society.

October 10, 1879.

Director Dr. LeConte in the chair.

The Publication Committee reported favorably the following papers for publication in the Transactions of the American Entomological Society:—

"Notes on the species of Asaphes of Boreal America," by Geo. H. Horn, M. D.

"Revision of the Dascyllidæ of the United States," by Geo. H. Horn, M. D.

"Contributions to the Coleopterology of the United States," by Geo. H. Horn, M. D.

"Short Studies on North American Coleoptera," by J. L. LeConte, M. D.

The following additions to the Library of the American Entomological Society were announced:—

Canadian Entomologist, vol. xi, No. 8. From the Editor.

Le Naturaliste Canadien, September, 1879. From the Editor.

Bulletin of the Brooklyn Entomological Society, vol. ii, No. 2. From the Society.

North American Entomologist, vol. i, No. 4. From the Editor.

Report of the Entomologist, C. V. Riley, August 22, 1879. From the Author.

An account of a new genus of minute Pauropod-Myriapods (*Eurypauropus spinosus*), by John A. Ryder. From the Author.

NOVEMBER 14, 1879.

Vice-Director Dr. HORN in the chair.

Dr. Leconte remarked that the paper he had recently presented for publication consisted chiefly of synoptic tables, some genera which from the enlargement of the collections seemed to require renewed study. Among them he mentioned:

Leptacinus (including *Leptolinus*), 9 species, of which 3 are new.

Xantholinus 12 species; 5 new.

Lathrobium 33 species; 16 new. There are three natural divisions indicated: the first containing only *L. grande*, in which the epipleuræ have no marginal stria; the front tibiæ are obliquely impressed on the inner face and the front thighs are not thickened. The second contains species with an epipleural stria; the front tibiæ obliquely impressed on the inner face and the front thighs thickened and frequently armed with a tooth in the ♂. In the third division the epipleural stria is visible, but the front tibiæ are feebly or not at all impressed and less dilated; the front thighs are thickened but not toothed. In the first and second divisions the elytra are densely punctured, while in the third the punctures are more or less regularly arranged in rows. The sexual characters of the ♂, as in most genera of Staphylinidæ, enable the species to be readily distinguished.

Stilicus 7 species; 3 new. Very distinct by sexual characters and sculpture of under surface of the head.

Scaius. I have been obliged to reduce the number of species to five.

Bryaxis 31 species; 7 new.

Hyperaspis 26 species; 9 new. The punctuation of the under surface frequently enables species otherwise similar to be easily separated.

Hoplia 12 species; 4 new. One of these *H. equina* closely re-

sembles *H. modesta*, but is remarkable for having but a single claw on each tarsus; the smaller claw of the front and middle tarsi being entirely obsolete. The hind claw is cleft near the tip as in *H. limbata* and *modesta* Hald., (*singularis* Burm.).

Myodites 11 species; 5 new. The form of the first joint of the hind tarsi readily distinguishes the species.

Mr. E. T. Cresson exhibited a collection of *Metopius* belonging to the American Entomological Society, and read descriptions of ten new species, as follows:—

Metopius basalis.—♀.—Deep black; margins of facial shield, spot above, anterior orbits not reaching summit of eyes, anterior knees, their tibiæ before, stripe on anterior tibiæ before, outer basal two-thirds of posterior femora, broad apical margin of first abdominal segment and two spots at tip of second segment, white; antennæ nearly two-thirds the length of body, slender; wings fuliginous, hyaline at base of posterior pair; legs slender; abdomen unusually long, coarsely rugose, first segment subpyramidal in profile, when viewed from behind the prominence is truncate. Length .80 inch.

Hab.—Florida.

Metopius robustus.—♀.—Robust, black; broad margins of facial shield, spot between antennæ, another on each side, scape beneath, scutellum, postscutellum, short line beneath stigma, large spot on sides of pleura, two spots on each side of metathorax, spot on outer side of posterior coxæ, their trochanters, spot at extreme tip of their femora, first segment of abdomen except base, apical margin of segments 2—4, broad on three and four, and narrow apical margin of fifth segment, all white; antennæ slender, about half the length of the body; wings fuliginous, darker on costal margin; posterior legs robust, especially the femora; abdomen much thickened posteriorly, rugose, first segment subpyramidal in profile, when viewed from behind the prominence is bituberculate. Length .65 inch.

Hab.—Maryland.

Metopius nevadensis.—♀.—Black, opaque; lateral and basal margins of facial shield, spot between antennæ, line on each side, scape beneath, lateral margin of prothorax above, sometimes a spot on pleura, apical margin of scutellum, spot on each side of metathorax, spot on four posterior coxæ, their trochanters, line on four anterior femora before, basal half of posterior pair, all the tibiæ and tarsi, first abdominal segment except base, a dot on apical corners of second, and apical margin of segments 3—6, broad on four and five, all yellowish-white; antennæ three-fourths the length of body, slender, filiform, fulvous beneath; wings hyaline, tinged with yellowish; posterior femora subrobust; abdomen rugose, first segment subpyramidal in profile, when viewed from behind the prominence is bituberculate. Length .55—.60 inch.

♂.—Resembles the ♀, except that the face entirely, labrum, spot on mandibles, palpi, all the trochanters, and four anterior femora except line above, are pale yellow.

Hab.—Nevada. (Morrison).

Metopius bellus.—♂.—Black; face, anterior orbits, spot beneath eyes, labrum, palpi, scape beneath, upper lateral margin of prothorax, scutellum except base, spot on postscutellum, two spots on metathorax, large mark on pleura laterally, tegulæ, legs except posterior coxæ above, tips of their femora, first abdominal segment except base, narrow lateral and apical margins of segments two and three, and the remaining segments except two black spots on each near base, all pale yellow; antennæ three-fourths the length of body, slender, filiform, fulvous, dusky above; wings yellowish-hyaline; posterior femora subrobust; abdomen long, first segment subpyramidal in profile, when viewed from behind the prominence is bituberculate. Length .55 inch.

Hab.—Nevada. (Morrison).

Metopius comptus.—♀.—Black; face, except a medial line, spot between antennæ, line on each side, labrum, palpi, scape beneath, upper lateral margin of prothorax, scutellum except base, two spots beneath tegulæ, dot on each side of metathorax posteriorly, and spot on flanks, pale yellow; antennæ thickened, a little longer than head and thorax, brown-ferruginous, black at tips; wings subhyaline; legs dull fulvous, spot on coxæ, trochanters, four anterior knees, and their tibiæ and tarsi, yellow, posterior femora robust, their middle above and their tibiæ at tips, blackish; abdomen coarsely punctured, base of segments 1—3 and middle of four ferruginous, spot on each side of first segment, the second and third except base, apical margin narrowly of 4—6 and spot at sides of four and five, yellow, first segment rounded above in profile, the disk with two carinæ broadly diverging at base; venter fulvous, black at tip. Length .50 inch.

Hab.—Colorado. (Morrison).

Metopius montanus.—♂.—Black; face except two dots arranged longitudinally, anterior orbits, scape beneath, tegulæ, line beneath, apical margin of scutellum, a spot on each side at base, spot behind, two spots on metathorax behind, and smaller one on each flank, yellow; antennæ robust, filiform, two-thirds the length of body, black, fulvous at base; upper lateral margin of prothorax, spot on tegulæ posteriorly, and stain on sides of pleura anteriorly, dull ferruginous; wings subhyaline, costa broadly yellowish, pale fuscous beyond stigma, with costal nerve and stigma fulvous; legs robust especially posterior pair, yellow; middle of four anterior femora and outer side of posterior coxæ, fulvous, their coxæ within, their femora except base and apex and their tibiæ at tip within, black, their tarsi fuscous; abdomen coarsely confluently punctured, sulphur-yellow, base of first, the second except lateral apical corners, the third except apex and apical corners, and base of remaining segments narrowly, black; first segment flattened in profile, the disk with two longitudinal carinæ. Length .45 inch.

Hab.—Colorado. (Morrison).

Metopius concinnus.—♂.—Black; face except central longitudinal black mark, carina between antennæ, short line on each side, scape beneath, upper margin of prothorax interrupted medially, tegulæ except spot behind, line beneath, spot on each side of pleura anteriorly, apex of scutellum, spot behind, and another spot on flanks, sulphur-yellow; antennæ two-thirds the length of body, filiform, fuscous, shading into ferruginous at base; wings yellowish-hyaline, broadly pale fuscous along costa, darker at tip; legs yellow, coxæ except tips and sides of posterior pair, femora except apex and extreme

base, and posterior tibiæ at tip within, black; tarsi dusky at tips; abdomen sulphur-yellow, coarsely confluently punctured, second segment except narrow band at tip, the third except broad band at apex, and narrow basal margin of remaining segments, black; first segment subpyramidal in profile, when viewed from behind the prominence is emarginate. Length .50 inch.

Hab.—Nevada. (Morrison).

Metopius mirandus.—♀.—Black; face except central longitudinal spot, scape beneath, spot beneath tegulæ, apical margin of scutellum, spot behind, first segment of abdomen, broad apical margin of third, and the three following entirely, pale yellow; palpi, base of antennæ, upper margin of prothorax, dot before scutellum, spot on each side of metathorax, spot on sides of pleura, apical margin of second segment of abdomen and narrow band on middle of third segment, ferruginous; antennæ three-fourths the length of body, slender; wings subhyaline, costal margin broadly pale fuscous; legs fulvous, posterior coxæ within and their femora within black, spot on middle coxæ, posterior pair except within, their trochanters and spot at tip of their femora, pale yellowish, the latter robust; abdomen densely rugose, first segment gibbous in profile, rounded above, with two sharp carinæ on disk. Length .50 inch.

Hab.—Colorado. (Morrison).

Metopius laticinctus.—♀.—Black; face, except a large oblong ovate median black mark, anterior orbits, scape beneath, palpi, line on posterior angles of prothorax, short line beneath tegulæ, scutellum, except base, rounded spot above posterior coxæ, a dot on each side of metathorax posteriorly, four anterior coxæ beneath, their trochanters, their femora beneath more or less, their tibiæ, spot at sides of apex of first segment of abdomen, and a band at apex of segments 2—6, sometimes subinterrupted on two, broad on three and four, narrow and dilated laterally on five and six, all yellow; antennæ longer than head and thorax, thickened towards apex, brown above, ferruginous beneath; thorax coarsely punctured; wings hyaline, dusky on apical margin, subiridescent; four anterior femora above, posterior coxæ, trochanters, base and apex of their femora and within, pale ferruginous; basal half of posterior tibiæ and base of their tarsi, yellowish; posterior femora robust; abdomen coarsely sculptured, first segment rounded above in profile, with two sharp carinæ on disk. Length .45 inch.

Hab.—Colorado. (Morrison).

Metopius scitulus.—♂.—Small, black; lateral and apical margins of face, spot on each side of antennæ, scape beneath, palpi, line on each side of prothorax, large elongate spot beneath tegulæ, scutellum entirely, dot on each side of metathorax posteriorly, large rounded spot on each flank above posterior coxæ, spot on four anterior coxæ beneath, trochanters, base and apex of four anterior femora, line on anterior pair beneath, tips of posterior femora, all the tibiæ and tarsi, spot on each side at tip of first abdominal segment, and band at tip of second and following segments, more or less dilated laterally, all lemon yellow; antennæ longer than head and thorax, slightly thickened toward tips, dull ferruginous, fuscous at tips; wings stained with dusky yellow; abdomen deeply and coarsely pitted, first segment rounded in profile, with two sharp carinæ on disk. Length .40 inch.

Hab.—Nevada. (Morrison).

Dr. Horn called the attention of the members to an instance of dimorphism in the female of *Desmocerus auripennis* Chev., the occurrence of which is not common. The male of this species has the elytra of an uniform orange color, the punctuation is coarse on the disc gradually becoming finer toward the tip. The normal female has the disc of the elytra coarsely punctured but much less so than the male and behind the middle very much finer, the elytra are of the same color except that there is a large discal steel-blue space resembling in general outline a keystone, of variable extent. In the second form of female the elytra are bluish-black narrowly bordered at base, sides and apex with the orange color, the surface not shining, the punctuation being also much finer and denser than in the normal form. The punctuation of the thorax is also finer and denser.

Dr. Horn stated that this latter form had been supposed to be a distinct species by some of his European correspondents, but that he was confident that it was merely an instance of dimorphism, which view is at least partially confirmed by Mr. Morrison, who stated that the specimen shown had been taken in copulation with the normal male.

In answer to inquiry Dr. Horn stated that sexual dimorphism is not uncommonly observed especially in the female sex, citing as examples several species of *Dysticus* and *Gaurodytes;* in the male true dimorphism is very rare unless we consider the impoverished forms of *Prionus imbricornis* an instance, or probably better the almost hornless males of *Phanæus* and *Strategus*. These Dr. Horn did not consider instances of true dimorphism in the sense in which the female *Desmocerus* is noted, nor in the same category with the females of *Dytiscus* with the elytra plain or sulcate.

The following additions to the Library of the American Entomological Society were announced:—

Proceedings of the Boston Society of Natural History, vol. xx, pp. 177—208. From the Society.

Bulletin of the Essex Institute, vol. xi, Nos. 4—9. From the Institute.

Canadian Entomologist, vol. xi, Nos. 9 and 10. From the Editor.

North American Entomologist, vol. i, No. 5. From the Editor.

Entomologist's Monthly Magazine, Nos. 185 and 186. From the Conductors.

Proceedings of the Zoological Society of London, 1879, Parts 1 and 2. From the Society.

Journal of the Linnean Society of London, Parts 72—79. From the Society.

Proceedings of the Linnean Society of New South Wales, vol. iii, Parts 2—4. From the Society.

Annales de la Société Entomologique de Belgique, Tom. 22, No. 2. From the Society.

Observations sur le Musée Entomologique de l'Université Imperiale de Moscow, par V. de Motschoulsky. From Dr. J. L. LeConte.

DECEMBER 8, 1879.

Director Dr. LECONTE in the chair.

Dr. LeConte called attention to a small coleopter lately described by Dr. Sharp (Trans. Ent. Soc. London, 1879, p. 88), as *Propalticus oculatus*, obtained from the higher mountains of the Hawaiian Islands. Specimens having been sent by Dr. Sharp for examination, they were placed in Dr. Horn's hands for such preparation as they might need, for careful study. The general aspect of the insect is not unlike some of our *Litargus*, and the number of tarsal joints and their structure also similar. The anterior tibia has an unusually large spur which Dr. Sharp supposed had something to do with the saltatorial power of the insect. During the examination and comparison it was noticed that *Litargus* has a spur somewhat resembling that of *Propalticus* but of less size. The general structure of the insect indicates that Dr. Sharp was correct in referring it to the Mycetophagidæ, and the widely separated coxæ and other characters suffice to separate it from the other genera at present known.

Dr. Horn in continuation spoke of the form of the tibial spur which seemed to be flat or chisel-shaped, the tip forming a sudden point by the truncation of each angle. This spur may assist in the saltatorial attempts of the insect but the posterior femora seemed sufficiently dilated to produce at least moderate leaps, being fully as much dilated as in some of our smaller Halticini. The views expressed by Dr. LeConte were concurred in.

Dr. Horn by illustration exhibited a deformity in the last joint of the left anterior tarsus of *Cremastochilus saucius*, in which that member seemed to be composed of three separate joints closely united in a conical mass, each portion indicated by its bearing a pair of normal claws, except that one of the pairs was closely united and only separated a short distance at tip. The tendency of deformities to exist by triplication was alluded to. Dr. Horn hoped to have the

deformities known to him illustrated and described, and the communication presented in the future.

Mr. E. T. Cresson presented the following descriptions of new hymenoptera:—

Philanthus sublimis.—♂.—Black; head and thorax clothed with a pale pubescence; head large, front prominent above antennæ; the entire face, nearly as high up as the lower ocellus, clypeus, most of mandibles, line on cheeks, two spots connected posteriorly behind ocelli, scape, four or five basal joints of flagellum beneath, prothorax above, two lines on mesothorax, two spots on scutellum, sometimes confluent, a dot on each side anteriorly, postscutellum, tubercles, a spot behind them and a larger subtriangular spot beneath, spot on each side of metathorax behind, sometimes two oblique lines on base, tegulæ, spot on all the coxæ beneath, apical half or two-thirds of femora, tibiæ and tarsi entirely, band on middle of first segment of abdomen sometimes interrupted, broad band on second and remaining segments, that on second segment triemarginate posteriorly, transverse spot on second segment of venter and bands or spots on remaining segments, all lemon-yellow; face broad; mesothorax shining, sparsely punctured; metathorax closely punctured, opaque, more or less deeply impressed longitudinally at base above; wings yellowish-hyaline, nervures and stigma pale fulvous; abdomen very coarsely, not closely, pitted, venter rather densely clothed with pale pubescence. Length .50—.55 inch.

Hab.—Colorado; California.

Philanthus californicus.—♂.—Black, shining; head and thorax sparsely clothed with pale pubescence; face broad, prominent above antennæ; the entire face nearly as high up as lower ocellus, clypeus, most of mandibles, line on cheeks, two spots behind ocelli, sometimes confluent posteriorly, scape, the four or five basal joints of flagellum beneath, subinterrupted line on prothorax above, two dots on disk of mesothorax sometimes wanting, two spots on scutellum, postscutellum, tubercles, spot behind and another beneath, tegulæ, spot or line on coxæ beneath, apex of femora more or less, tibiæ and tarsi entirely, narrow interrupted band on middle of first segment of abdomen, broad band on second segment, notched in middle posteriorly, a rather broad bisinuate band on third, narrow bands on apical margin of three following segments, and subobsolete bands on venter, all yellow; head large; mesothorax with fine scattered punctures, deeply impressed on anterior middle; metathorax as in *sublimis*; wings yellow-hyaline, nervures and stigma pale fulvous; abdomen shining, with deep scattered punctures on two or three basal segments; venter thickly clothed with pale pubescence. Length .47 inch.

Hab.—California. Closely allied to *sublimis*, but the abdomen is much less coarsely sculptured.

Philanthus pacificus.—♂.—Black, shining; head and thorax thinly clothed with pale pubescence; the face, extending up to ocelli, clypeus, two spots behind ocelli, spot behind eyes, spot on mandibles, dot on scape beneath, four basal joints of flagellum beneath, prothorax above, two stripes on disk of mesothorax, tegulæ, spot or line in front, scutellum sometimes interrupted in middle, postscutellum, two spots or oblique lines on disk of metathorax, tuber-

cles, spot behind, knees, tibiæ and tarsi, broad band on first and second segments of abdomen, deeply notched on each side posteriorly, narrow band at apex of third and three following segments more or less deeply emarginate on each side anteriorly, all yellow or yellowish-white; around the base of antennæ the face is more or less black; head large; mesothorax smooth, polished, with a few scattered punctures; metathorax closely punctured, with a short rather deep groove on disk; wings hyaline, tinged with yellow, stigma and costa pale fulvous; abdomen shining, finely and sparsely punctured; venter piceous, apical margin of segments paler. Length .30—.35 inch.

Hab.—Nevada; Oregon.

Philanthus scelestus.—♀.—Deep black, shining; head large, face broad, prominent between antennæ; space between ocelli and insertion of antennæ opaque: face, continued up on each side as far as emargination of eyes, three spots sometimes confluent between antennæ, clypeus, line on mandibles, scape beneath, interrupted line or two spots on collar, tubercles, postscutellum, dot on tegulæ, spot on sides of first segment of abdomen, sublunate spot on each side of second, and interrupted or subinterrupted line on apex of two or three following segments, white; knees, tibiæ except tips beneath and most of tarsi, yellowish; thorax above smooth and impunctured, a shallow fovea on disk of metathorax; wings dusky, tinged with yellowish; abdomen smooth and impunctured; sometimes the white line on apex of third and fourth segments are not interrupted, but deeply and squarely emarginate on each side anteriorly. Length .35—.42 inch.

Hab.—Colorado.

Philanthus basilaris.—♀.—Black, shining; head and thorax clothed with pale pubescence; a large subcordate mark between antennæ, sides of face narrowed to emargination of eyes, clypeus, line on mandibles, line behind eyes, four basal joints of antennæ beneath, interrupted line on collar, postscutellum, tubercles, spot behind, and tegulæ, white; apex of four anterior femora beneath, posterior knees and tibiæ, except spot behind on two anterior pairs, pale yellow; tips of posterior tibiæ beneath and the tarsi fulvous; wings yellowish-hyaline, nervures and stigma pale fulvous; two basal segments of abdomen above, and the three beneath, fulvous, an irregular band on first segment, a broad, sometimes interrupted band on second, and a narrower entire band at apex of third and following segments, white; space between summit of eyes much narrower than usual; mesothorax finely punctured, sparsely so on disk and on scutellum; disk of metathorax with a rather deep longitudinal groove; abdomen shining, with deep sparse punctures, closer and coarser on two basal segments. Length .55—.60 inch.

♂.—Eyes nearly meeting on vertex; the spot on front above antennæ large and subrhomboidal; the eight basal joints of antennæ are yellow beneath; the base of first abdominal segment above and two basal segments beneath are pale fulvous; the segments above rather more coarsely punctured than in ♀. Length .40 inch.

Hab.—Colorado.

Philanthus zebratus.—♂.—Black, shining; eyes unusually large, nearly meeting on vertex; the entire face, extending up as high as ocelli, clypeus, spot or line behind eyes, eight basal joints of antennæ beneath, interrupted line on collar, tegulæ, spot in front, spot on tubercles, sublunate spot

behind, line on postscutellum, sometimes interrupted, tips of femora, tibiæ and tarsi and band on each abdominal segment above, broad on first and second and becoming gradually narrower on remaining segments, all lemon-yellow; thorax above with rather fine, scattered punctures; disk of metathorax with a deep longitudinal groove; wings yellowish-hyaline; abdomen shining, with rather deep scattered punctures; venter piceous, thickly clothed with ochraceous pubescence. Length .45 inch.

Hab.—Nevada.

Philanthus scutellaris.—♂.—Black, shining; head, thorax and base of abdomen above, with short pale pubescence; eyes unusually large, nearly meeting on vertex, sides of face, large subrhomboidal mark above antennæ, clypeus, spot behind eyes, eight basal joints of antennæ beneath, subinterrupted line on prothorax above, tegulæ, dot above, spot beneath, scutellum, postscutellum, two dots at tip of metathorax above, tips of femora, tibiæ and tarsi, broad band on two basal segments of abdomen, narrowed and interrupted medially, and a narrow band on apex of third and three following segments, all yellow; thorax above finely punctured, metathorax deeply impressed on disk; wings dusky on apical half, nervures pale fuscous; abdomen shining, finely but not closely punctured; venter thickly clothed with fuscous pubescence. Length .50 inch.

Hab.—Kansas. Closely allied to *Sanborni* Cress.

The following Officers etc., were elected to serve for the year 1880:—

Director.—John L. LeConte. M. D.

Vice-Director.—George H. Horn, M. D.

Recorder.—James H. Ridings.

Treasurer.—E. T. Cresson.

Conservator.—George B. Cresson.

Publication Committee.—George H. Horn, M. D., Samuel Lewis, M. D.

The following additions to the Library of the American Entomological Society were announced:—

Canadian Entomologist, vol. xi, No. 11. From the Editor.

Proceedings of the Boston Society of Natural History, vol. xx, Part 2, and sig. 15—17 of Part 3. From the Society.

Bulletin of the Brooklyn Entomological Society, vol. ii, No. 3. From the Society.

Le Naturalist Canadien, Nos. 130 and 131. From the Editor.

Destruction of Obnoxious Insects, by application of the yeast fungus. By Dr. H. A. Hagen. From the Author.

Transactions of the Entomological Society of London, for 1878. From the Society.

Transactions and Proceedings of the Philosophical Society of Adelaide, South Australia, 1877 and 1878. From the Society.

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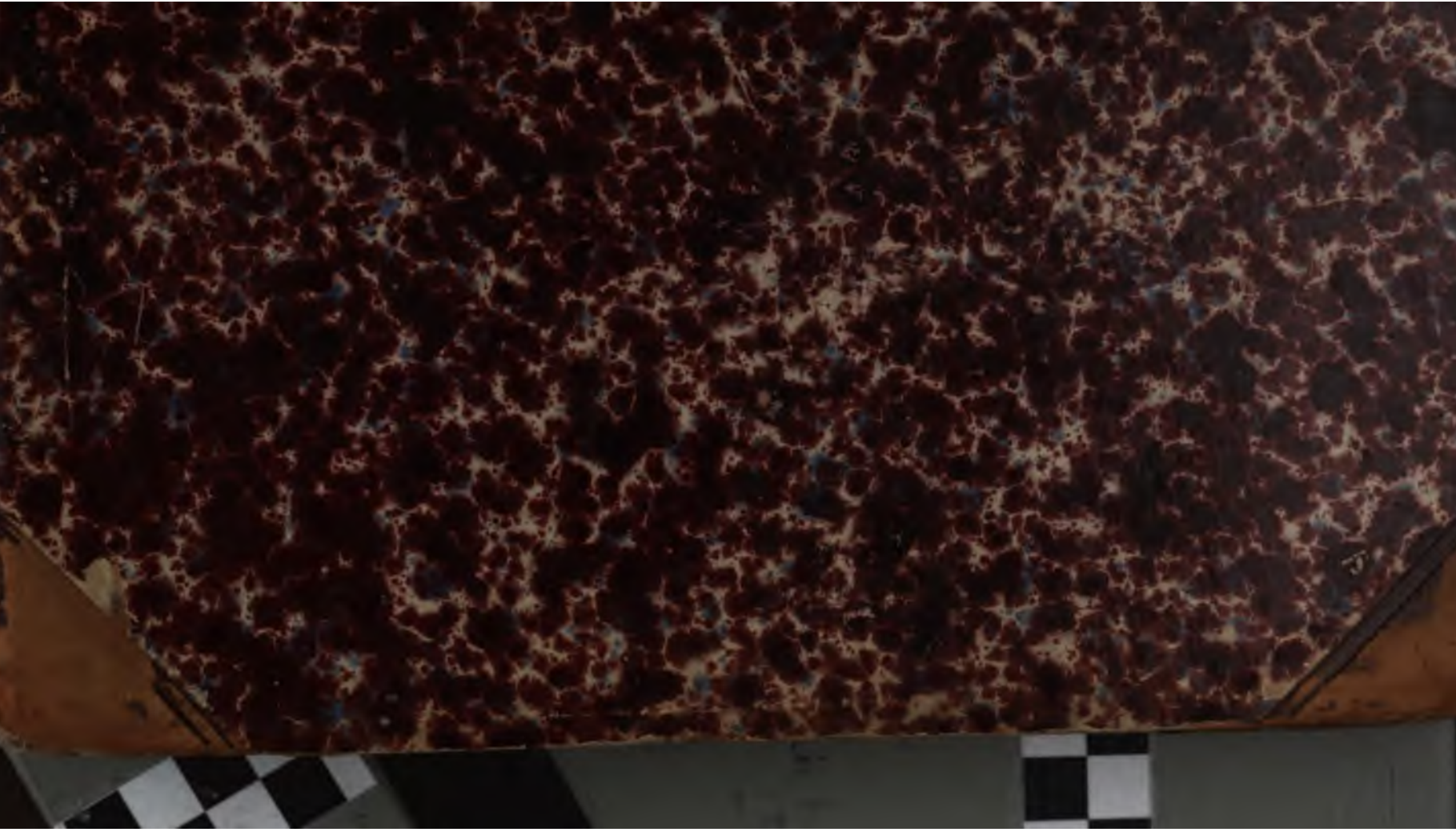
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